

PLASMA TV



LG Electronics

Display Division CS Gr


Great Company Great People
XCUTE 125
Think New
ERRC
Eliminate, Reduce,
Raise, Create

CONTENTS

Great Company Great People

XCUTE 125

Think New

ERRC Eliminate, Reduce, Raise, Create

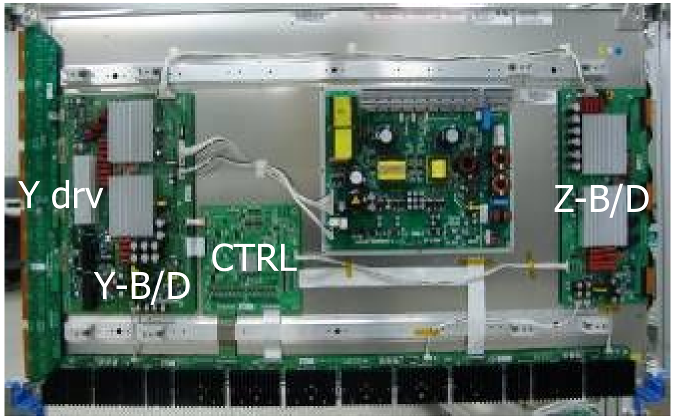
1. PLASMA Overview



Structure of PDP module



< Front >



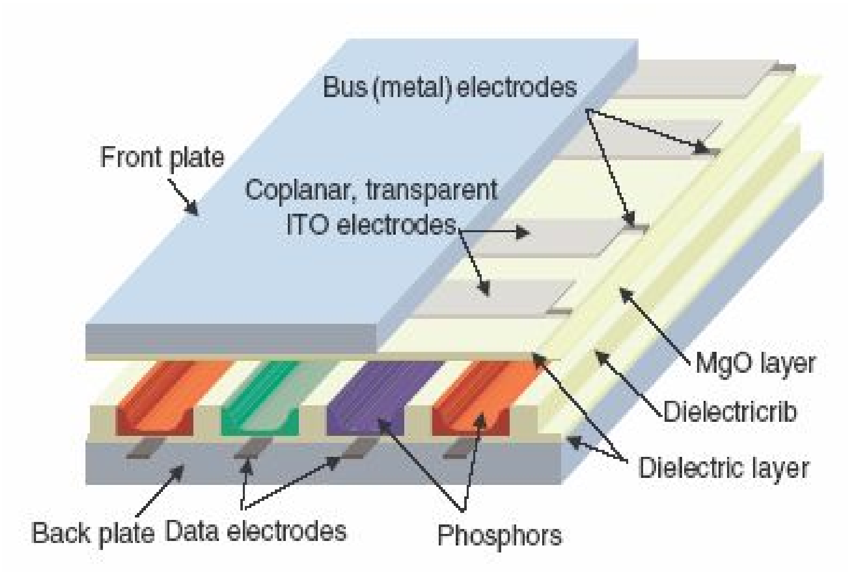
< Back >

PLASMA MODULE has PANEL part and DRIVE part.

Panel : Electrode, Phosphor, Dielectrics, Gas.

Drive : Electronic circuit & PCB.

(X , Y-sus, Z sus, Y drv,PSU,CTRL B/D)



<Cross section view of PDP panel >

Safety & Handling Regulations

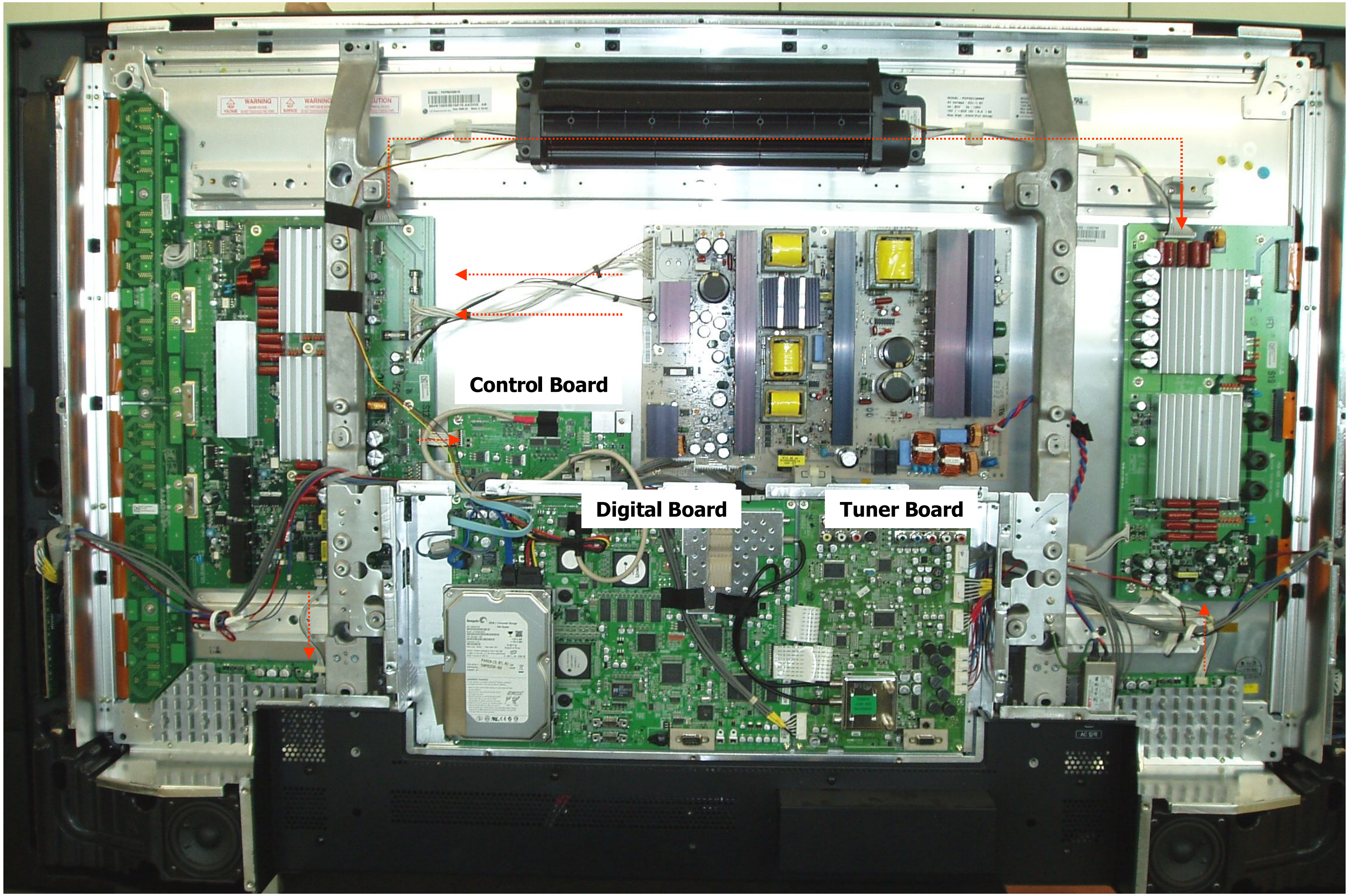
1. About 10 minute preparation is required before adjustment.
2. Higher voltage than is required for the product shouldn't be applied.
3. Be cautious of electric shock for PDP module since PDP module uses high voltage, and it is recommended that should one touch the drive circuit after one minute because of residual current.
4. Circuit drive has c-mos circuit which should be protected from static electricity.
5. Module must be carried by two people.
6. Be careful of short circuit when measuring voltage.
7. Be cautious of screws and other metal objects to pervent short in circuit part.

Checking Point before Requesting MODULE Repair

1. Check the appearance of Panel and board.
2. Check the model label if model names and board model matches.
3. Check details of defective condition and history.

   Ex) COF long 2-1 fail, address 1 line open, Y b/d trouble, Maldischarge on screen.

Configuration





2. Principle of PLASMA Operation



Basic Information

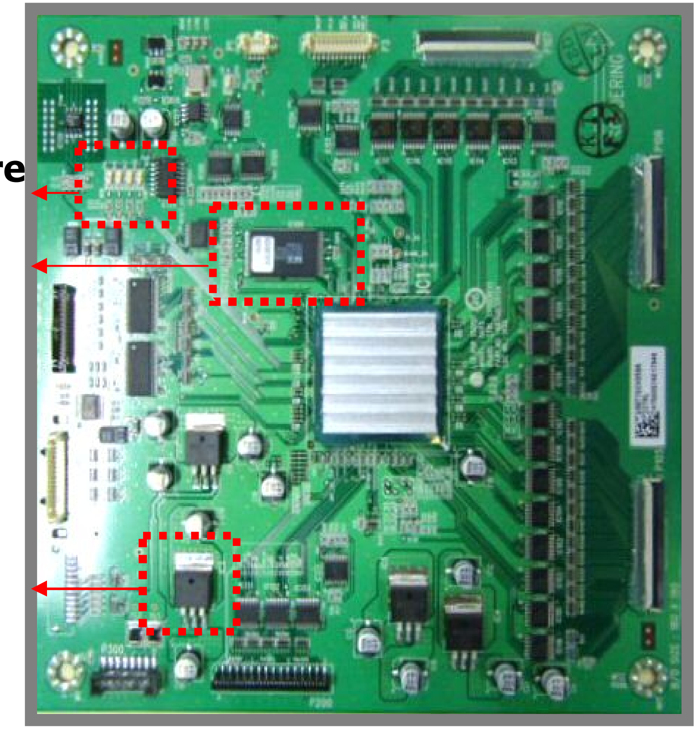
◆. In charge of all signal process (Contour noise declined ISM…) and creating ON/OFF order of all FET on DRIVER B/D by receiving 8 bit R, G, B input.

◆. Power : 3.3V/5V

Temperature diode

Flash ROM

Regulator



Temperature display diode

Weight	
D15 - 8	
D16 - 4	
D17 - 2	
D18 - 1	

Temperature display diode can be checked.

Left picture shows 7 periods which means normal temperature

1. Check LED (Normal status lightening or not)
2. If not CHECK OSC X1 output.
3. Check CTRL input voltage

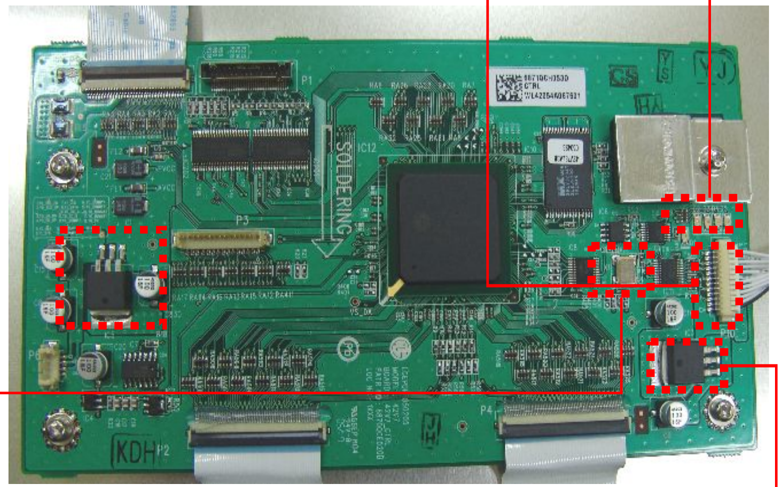
   (CONNECTOR P10)
4. CHECK each FET 3.3V, 5V,1.8V.

Input voltage



LED



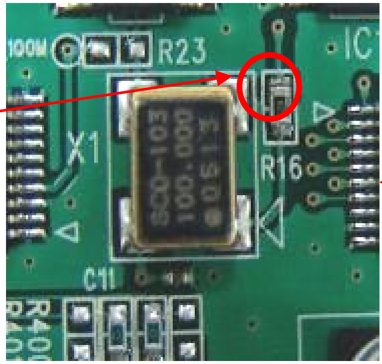


OSC(X1)

Probe

Touching

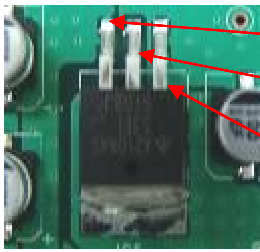
point



Check oscillating state.

Be careful with physical shock.

Check FET

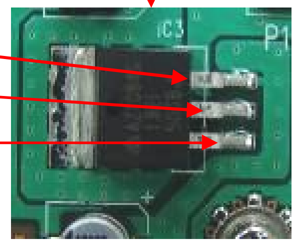


5 V

3.3 V

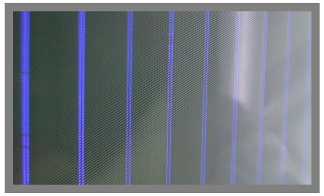
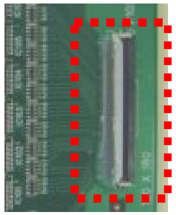
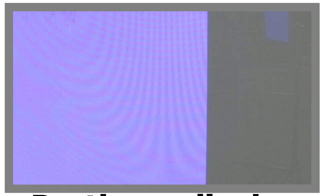
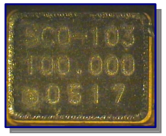
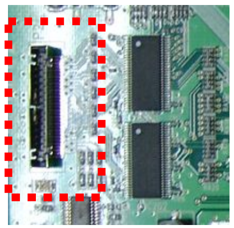
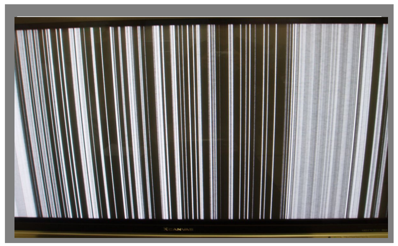
DMM –
(GND)

1..8 V



Basic Information

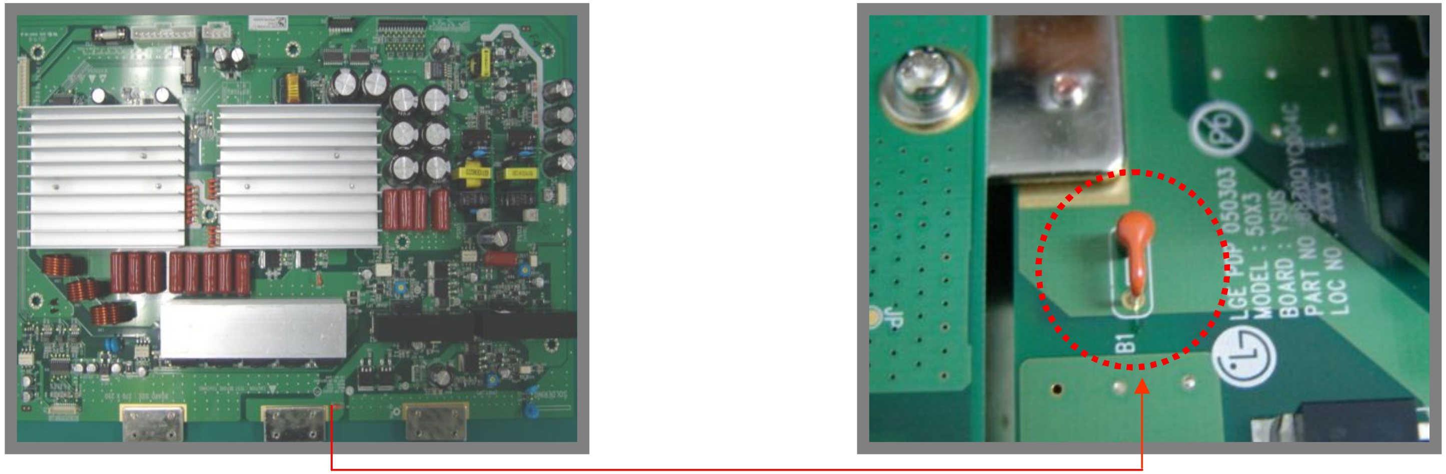
- ▶ **Main Defect : MCM , connector, oscilator, LVDS poor connection**
- ▶ **Voltage used : 5V/3.3V/1.8V/2.5V 4 kind of voltage.**

Defect part	Description of defect	Part	Defect display
MCM	Regular vertical lines	 < MCM >	
Connector	No display or Partly no display	 < Connector >	 < Partly no display >
Oscilator	No picture	 < Oscillator >	
LVDS poor connection	Abnormal display		 < Poor connection >  < Poor connection >

◆. Generates SUSTAIN Waveform, RESET Waveform,

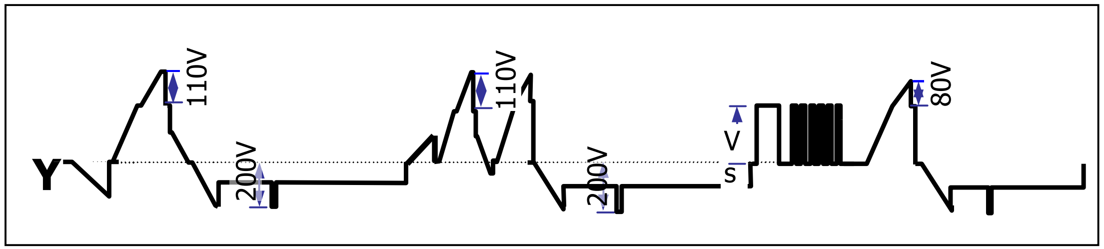
VSC(SCAN) Voltage and supplies to Y DRIVER B/D.

◆. Composed of IPM, DIODE, Electrolysis CAPACITOR, and FET.



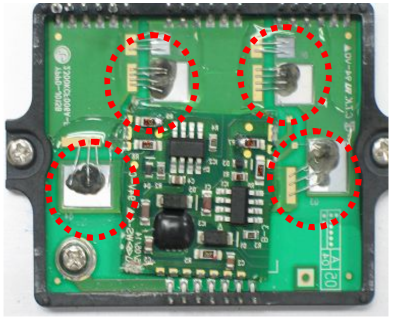
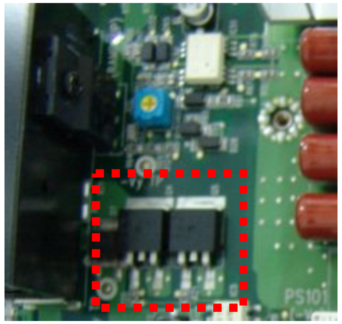
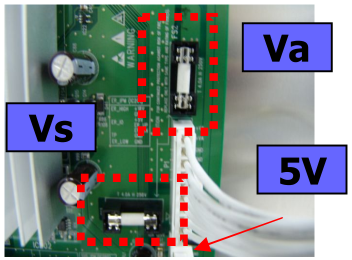
< Probe connect point to Oscilloscope to check Z wave form >

50X3 Y Waveform



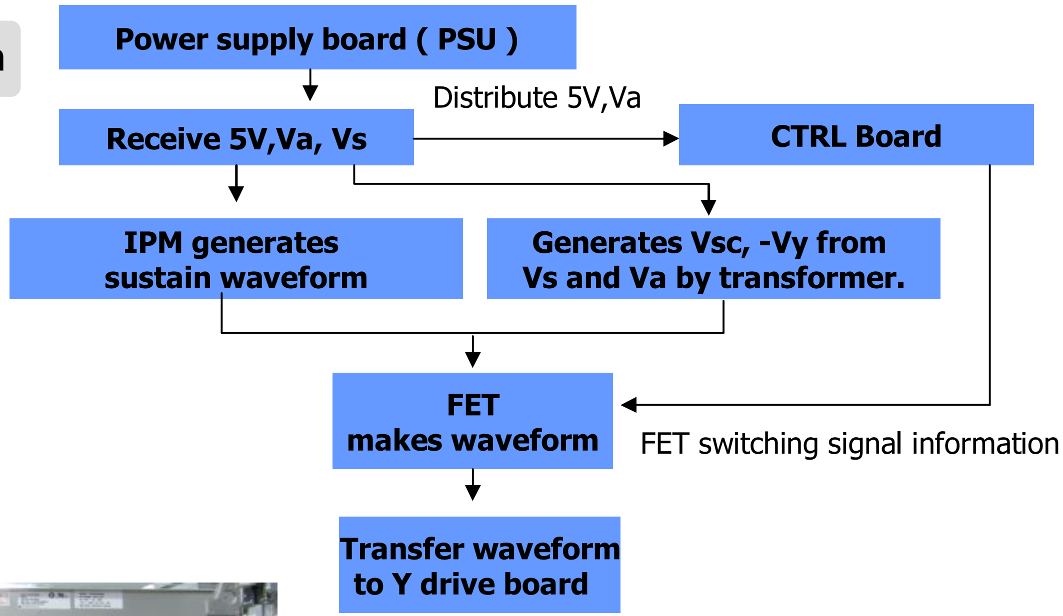
Basic Information

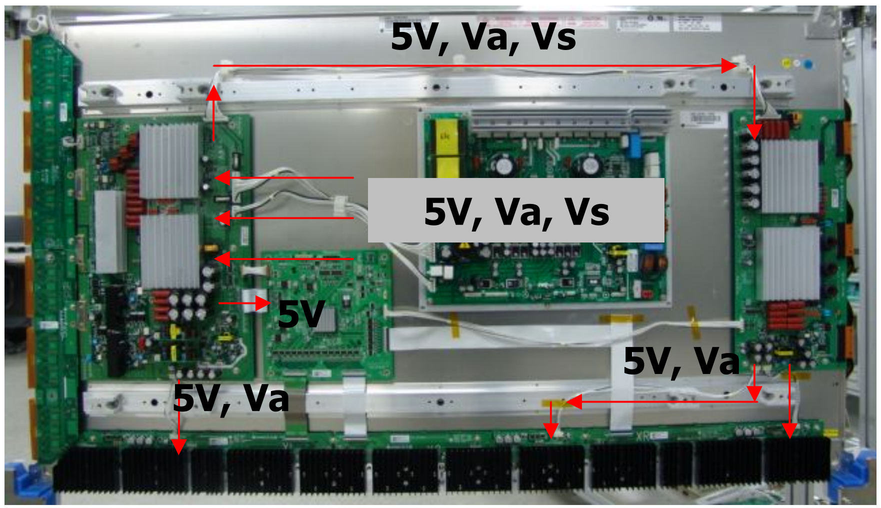
- Main Defect : IPM fail, FET fail, fuse
- Voltage used: Vs/Va/-Vy/Vsc 4 kind of voltage.

Defect name	Description of defect	Part	Defect display
IPM Fail	No display (If the ER IPM failed, The screen can display normal picture for few minutes)		< No display >
FET fail	No display (there is many FETs on Y sustain board)		< No display >
Fuse	No display * 5V- SMT fuse * Va, Vs fuse-ceramic fuse		< No display >

Basic Information

Y sustain board Block Diagram





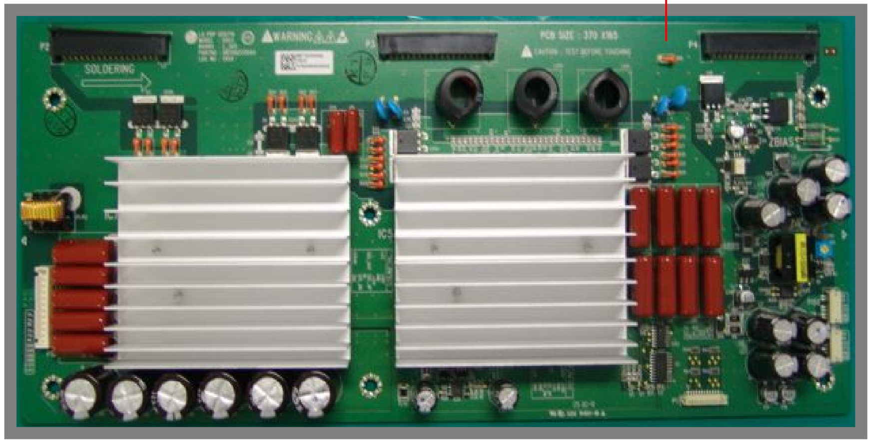
Voltage flow .

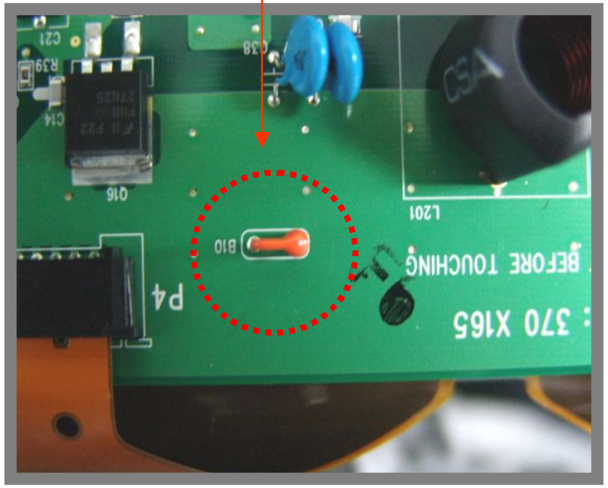
◆. Generates Sustain pulse and Erase pulse for Sustain discharge on Panel

by receiving Logic signal from Control B/D.

This output waveform is delivered to Panel through FPC(Z).

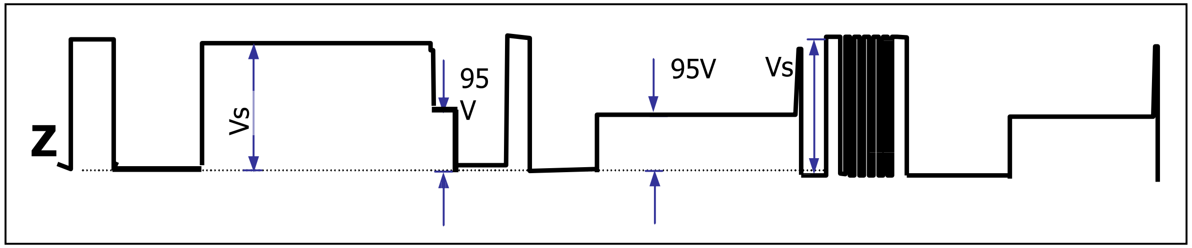
◆. Composed of IPM, FET, DIODE, Electrolysis CAPACITOR, and E/R COIL.





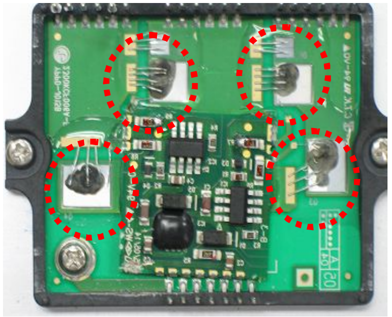
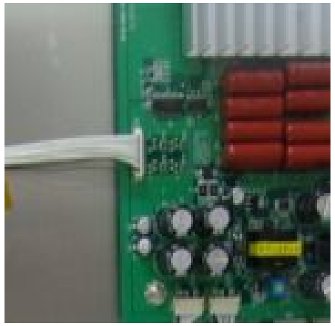
50X3 Y waveform

< Probe connect point to Oscilloscope to check Z wave form >



Basic Information

▶ **Main Defect : IPM fail, cable connection.**

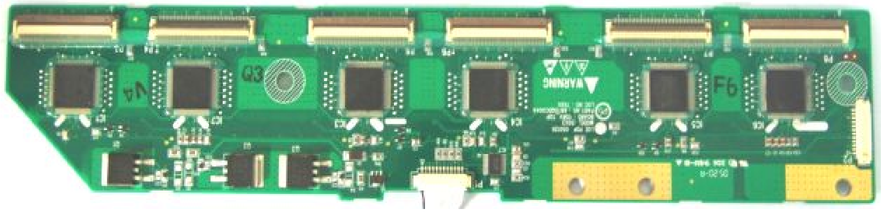
Defect name	Description of defect	Part	Defect display
IPM Fail	Dark display		 < Dark display >
Cable connection	If the cable was not connected, There is no display		 < No display >

Basic Information

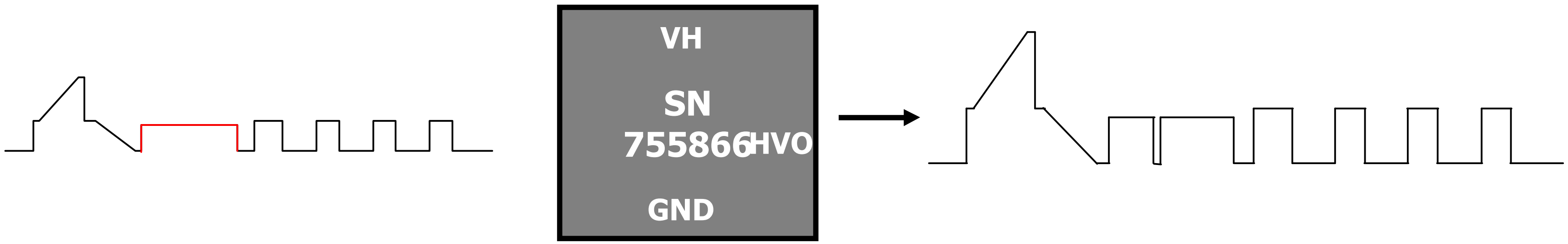
1) Works as a path supplying Sustain waveform and Reset waveform which is made in Y SUSTAIN B/D to the Panel through SCAN DRIVER IC

2) Supplies a waveform which selects horizontal electrode (Y SUSTAIN electrode) in order.

- Potential difference between DRIVER IC GND and Vpp in SUSTAIN period is 0V.
- Potential difference between DRIVER IC GND and Vpp only occurs in SCAN period.

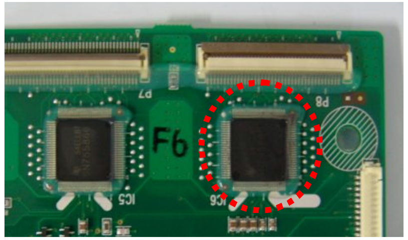
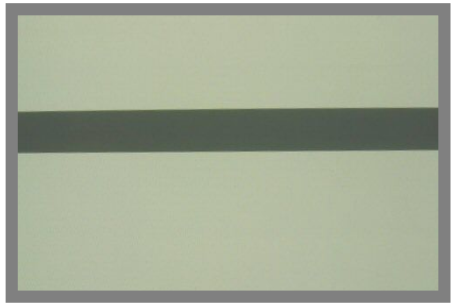
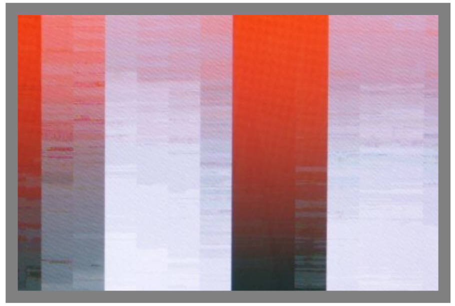


* 50X3 uses 12 DRIVER ICs (TOP, BOTTOM: 6 each)



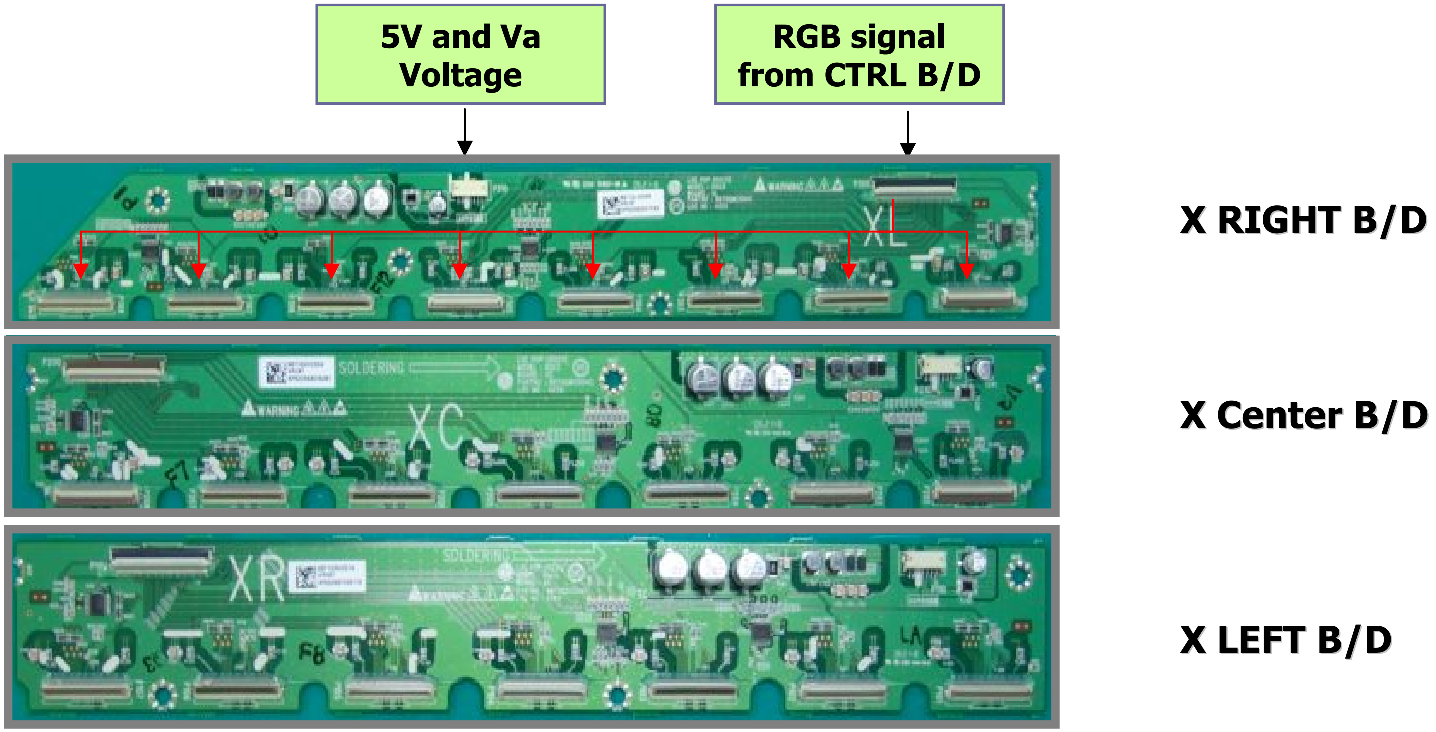
Basic Information

▶ **Main Defect : SCAN IC fail, cable connection.**

Defect name	Description of defect	Part	Defect display
SCAN IC fail	Horizontal bar		 < Horizontal bar >
Cable connection	If the cable was not connected, There is no abnormal		 < Abnormal display >

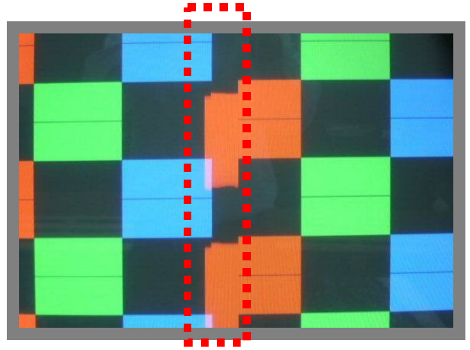
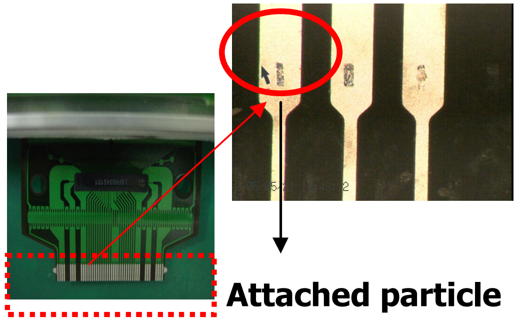
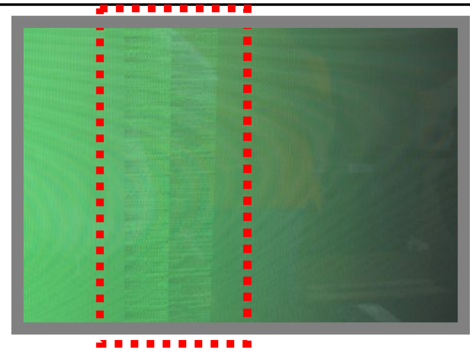
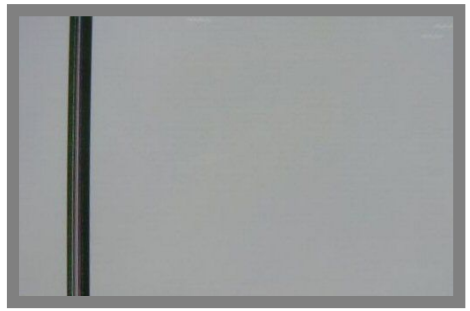
◆. Makes an Address pulse (generates Address discharge) on the panel using FET ON/OFF after receiving logic signal from CONTROL B/D, and supplies the output waveform to COF(DATA).

◆. Composed of FET, FET Drive IC, and Logic IC.



Basic Information

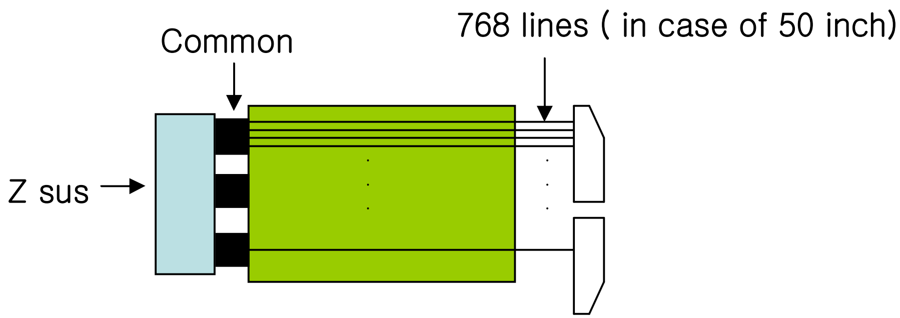
▶ **Main Defect : Poor connection, Particle inserted.**

Defect name	Description of defect	Part	Defect display
Poor connection	Vertical abnormal display	 < Poor connection >	
	Vertical abnormal display	 Attached particle	
	Vertical line (similar with IC fail)	Line created by particle or insertion defect	

◆. **Connects PAD electrode of PANEL to PCB (Y & Z) and supplies the Drive waveform of circuit to PANEL.**

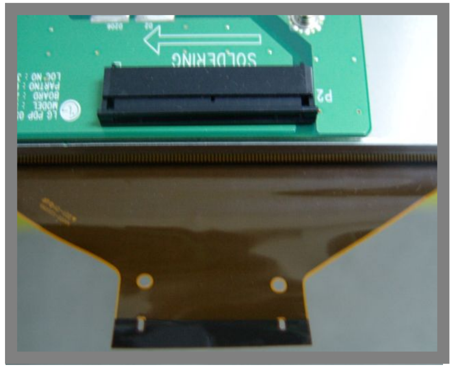
***. Y uses single/double-sided The pattern is on FPC.**

***. Z uses single-sided which is Beta type (Copper plate in the front) without pattern.**





< Y drv >

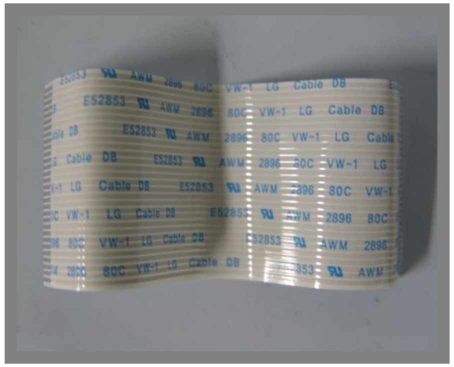


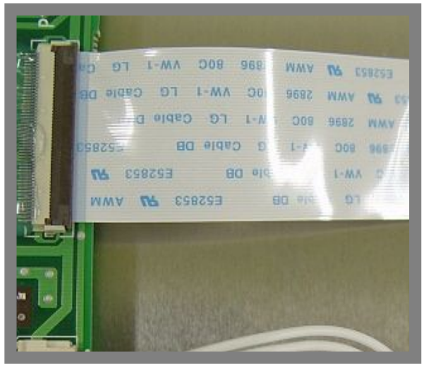
< Z board >

8. FFC (Flat Flexible Cable)

◆. **Connects the logic signal between B/D**

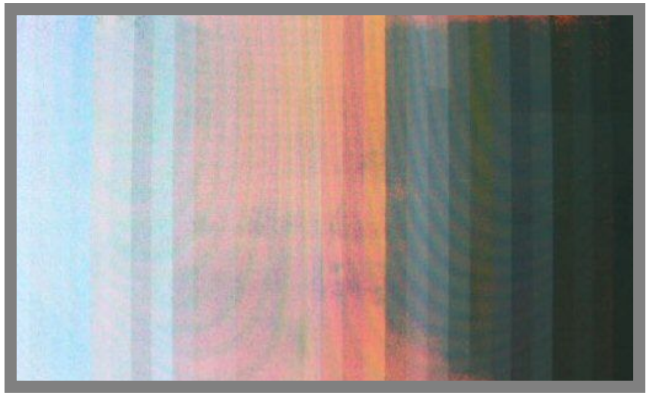
*** 0.5mm pitch,50pin type**
1mm pitch, 30pin type





① **Replace Y or Z B/D : Most maldischarge is caused by Y or Z.**
If one B/D replacement doesn't work, replace both B/D.

② **Replace CTRL B/D : For maldischarge by signal process, replace CTRL B/D or download S/W.**



Mal discharge by board defect

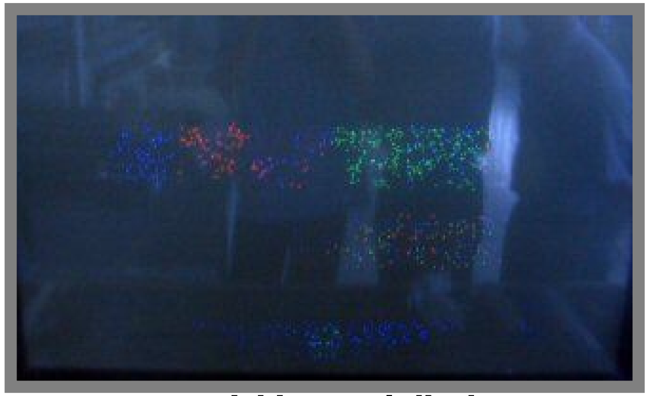
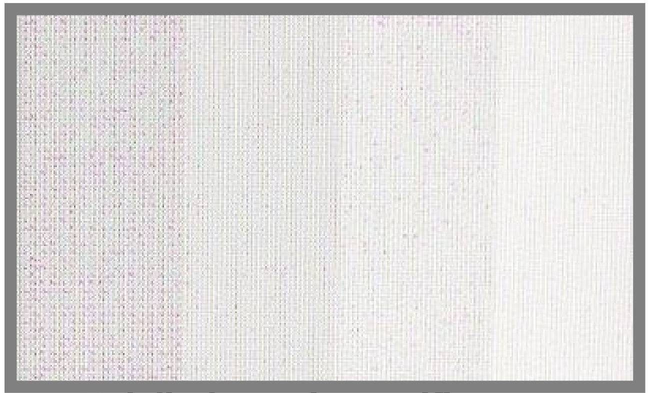
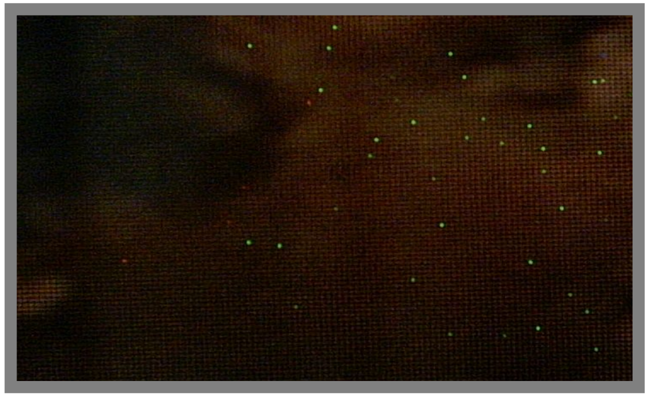


Image sticking mal discharge



Mal discharge in specific gray

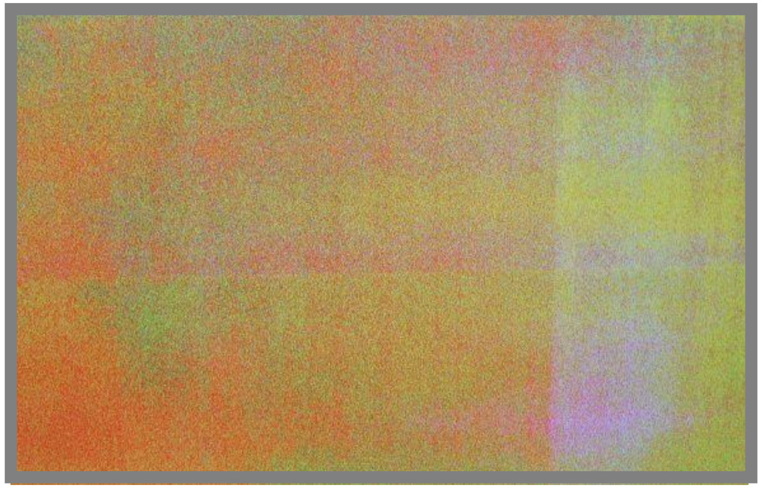


Non extinguishing mal discharge

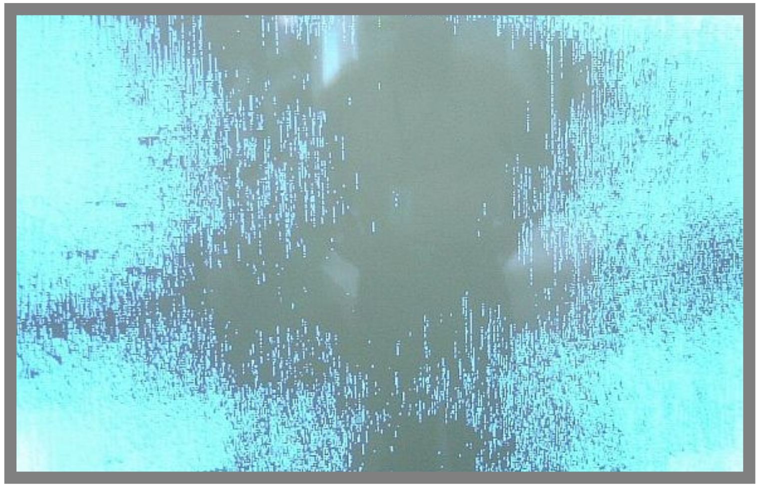
◆. Most maldischarge is caused by Y drv , Y-sus , Z-sus problems, and can be checked as stated before.

Checking Order

1. Check Y, Z SUS signal cable
2. Y DRV IC FAIL check
3. Check Y sus b/d voltage (-Vy.Vscw)
4. Check Y ,Z-SUS IPM fail
5. Replace CTRL b/d

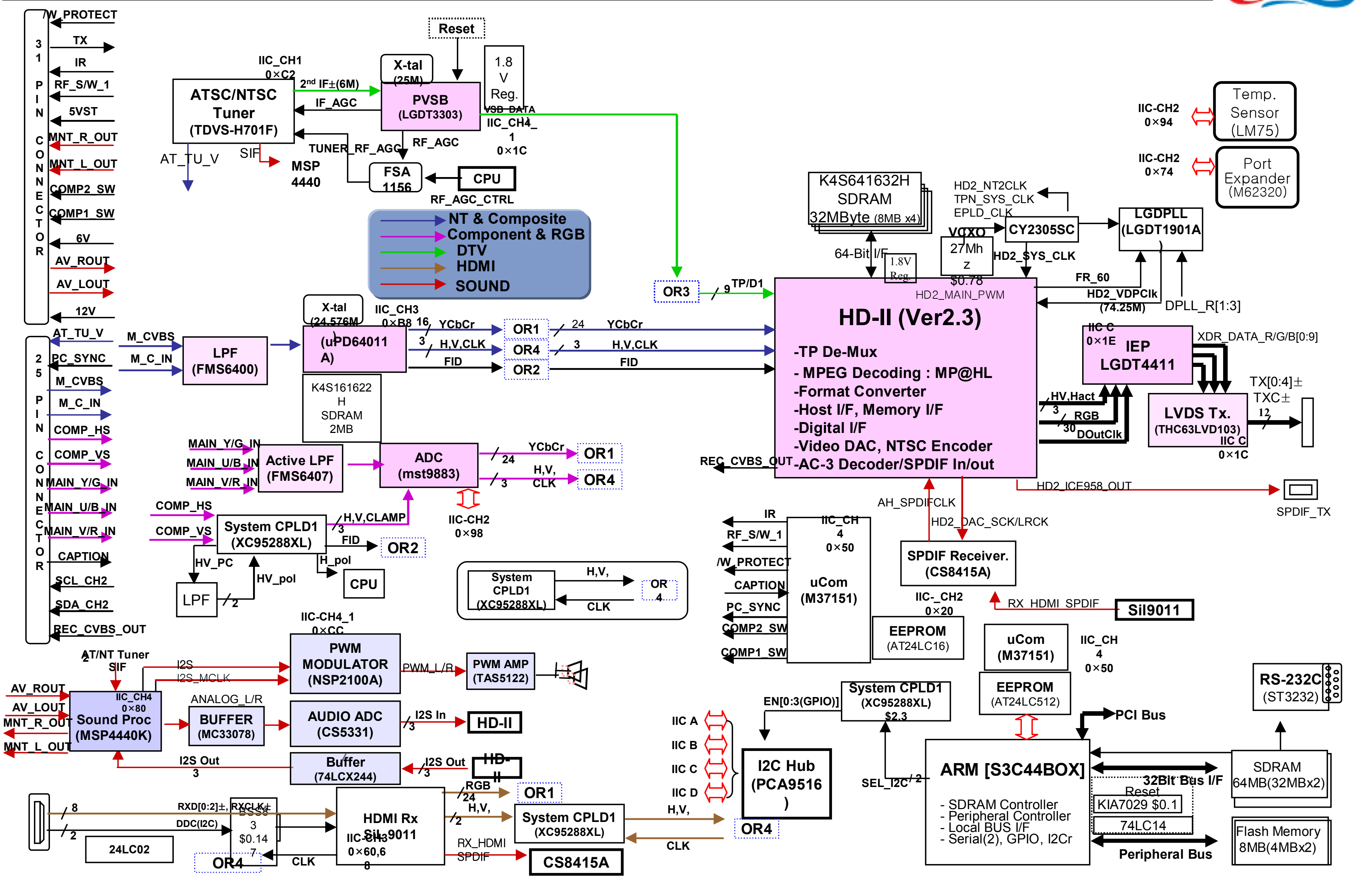


* Maldischarge Picture

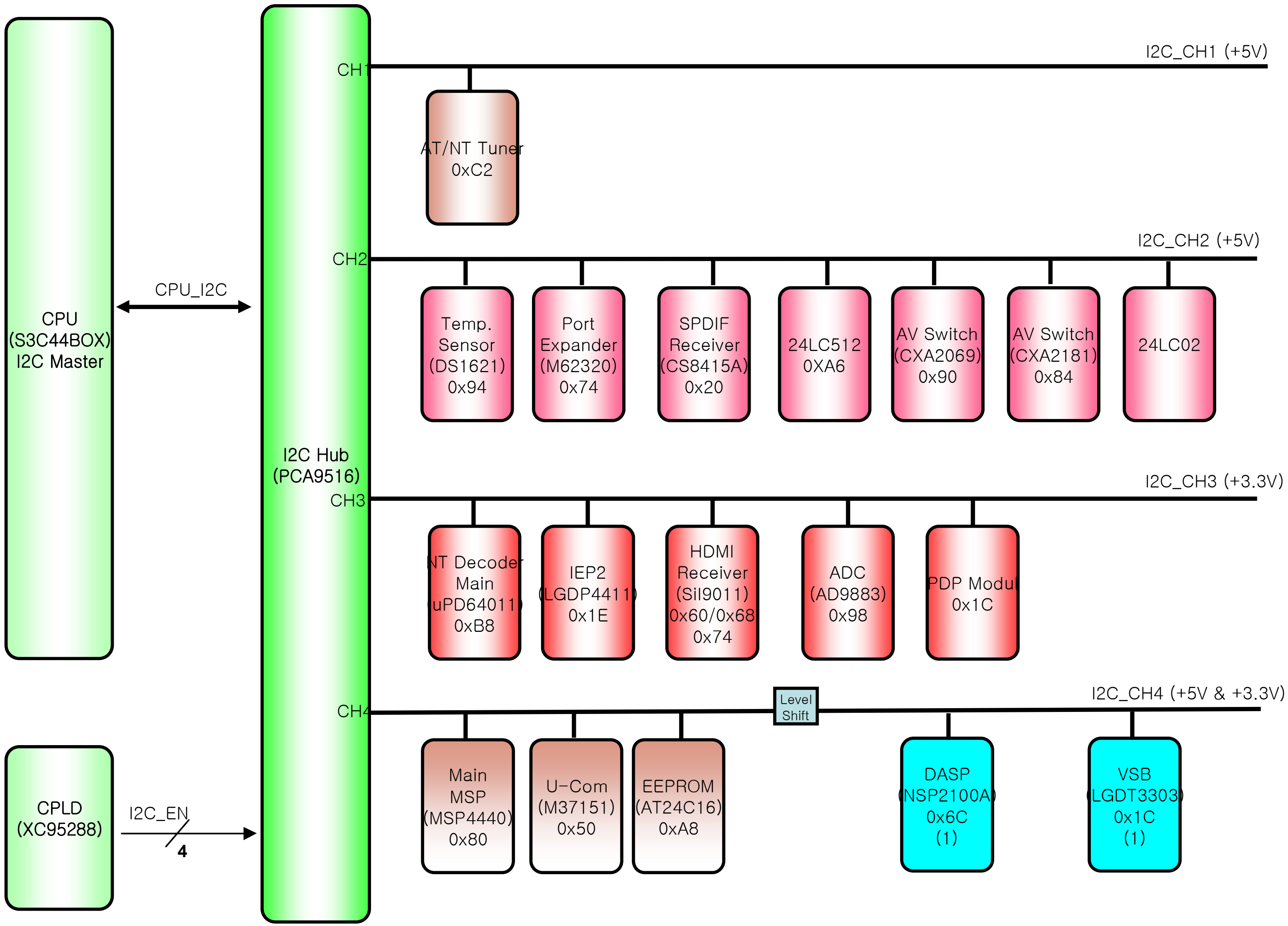


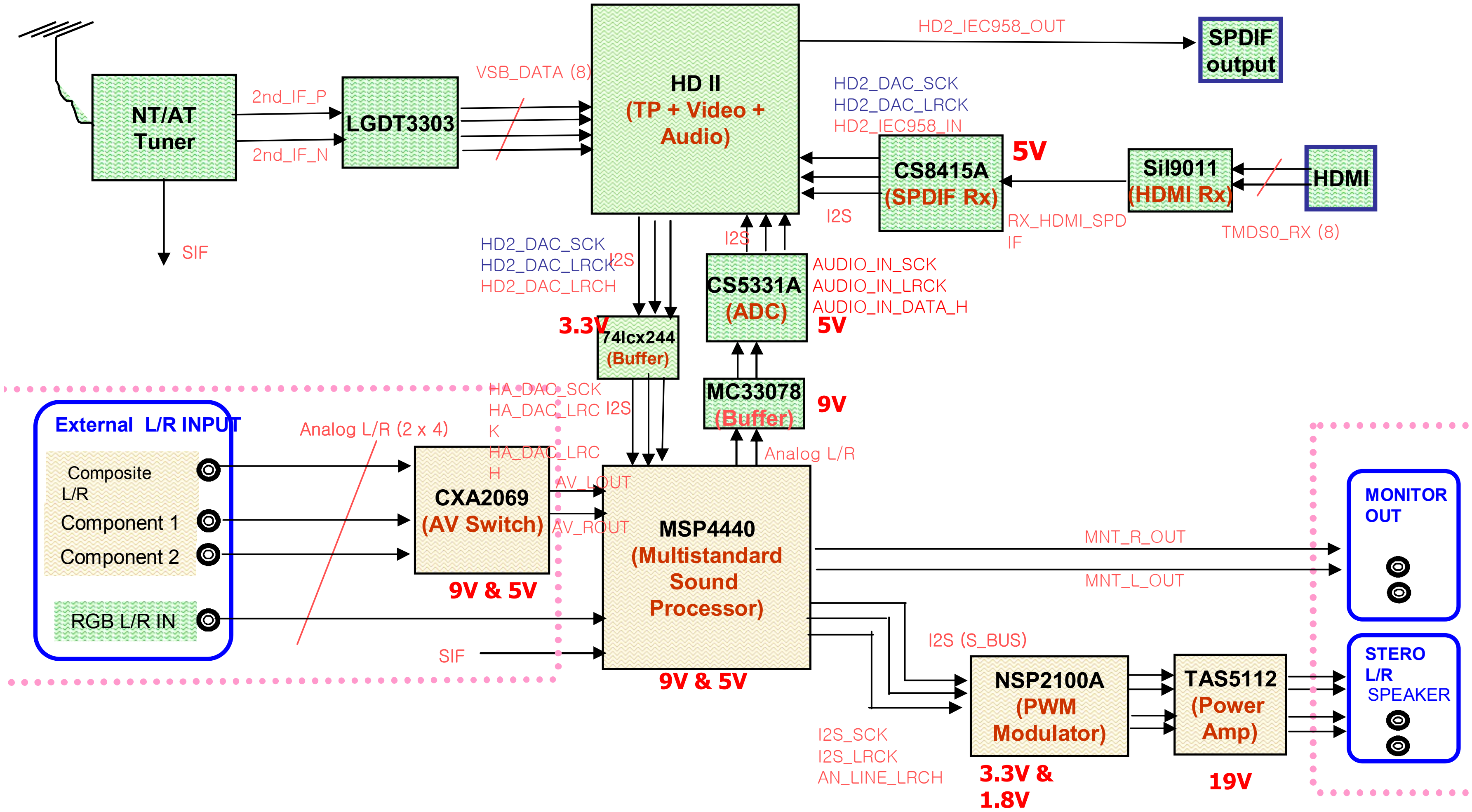
* Maldischarge Picture

Pacific Digital Board BlockDiagram



"PACIFIC" I2C Configuration



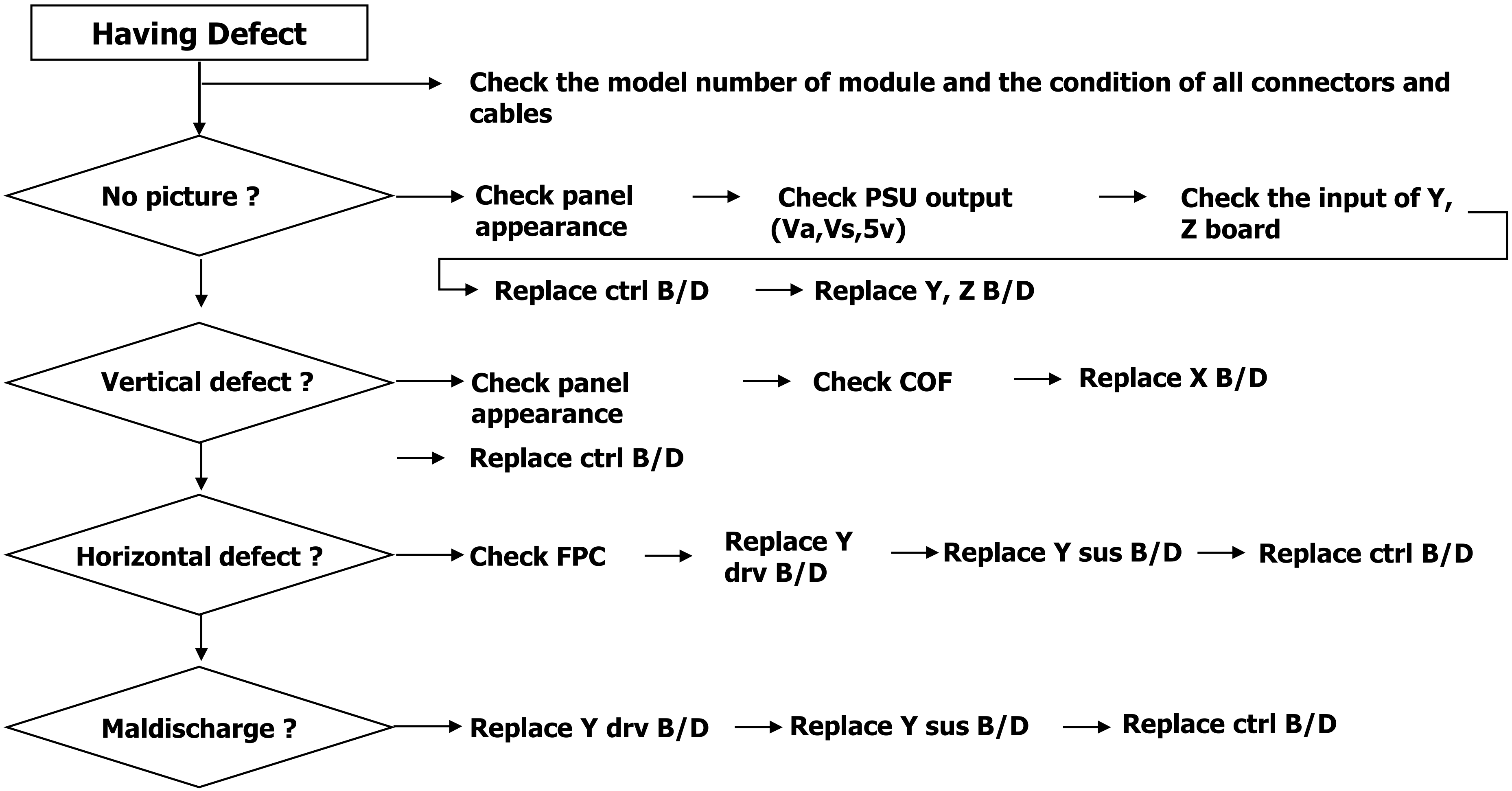

NT/AT Tuner
2nd_IF_P
2nd_IF_N
LGDT3303
VSB_DATA (8)
HD II
(TP + Video + Audio)
HD2_IEC958_OUT
SPDIF output
HD2_DAC_SCK
HD2_DAC_LRCK
HD2_IEC958_IN
CS8415A
(SPDIF Rx)
5V
SiI9011
(HDMI Rx)
HDMI
I2S
RX_HDMI_SPD
IF
TMDS0_RX (8)
SIF
HD2_DAC_SCK
HD2_DAC_LRCK
HD2_DAC_LRCH
I2S
3.3V
74lcx244
(Buffer)
CS5331A
(ADC)
AUDIO_IN_SCK
AUDIO_IN_LRCK
AUDIO_IN_DATA_H
5V
MC33078
(Buffer)
9V
HA_DAC_SCK
HA_DAC_LRC
K
HA_DAC_LRC
H
I2S
External L/R INPUT
Composite L/R
Component 1
Component 2
RGB L/R IN
Analog L/R (2 x 4)
CXA2069
(AV Switch)
9V & 5V
AV_LOUT
AV_ROUT
Analog L/R
MSP4440
(Multistandard Sound Processor)
9V & 5V
SIF
MNT_R_OUT
MNT_L_OUT
MONITOR OUT
I2S (S_BUS)
NSP2100A
(PWM Modulator)
3.3V & 1.8V
TAS5112
(Power Amp)
19V
STERO L/R SPEAKER
I2S_SCK
I2S_LRCK
AN_LINE_LRCH



3. PLASMA Check Point



Module check point



Protection mode check point

- Check the back light if there is small maldischarge from module.
- Check the noise of Relay. "Click"
- Check the front LED turns from Red to Green.

Power OFF

Is PSU normal ? → Low/High Voltage check except Stand-by → Disconnect P800,802,803 connector on power board

Is Y-board normal ? → FS2,FS3 Fuse check! Vs , Va short check! → Disconnect Z-Board connector

Is Z-board normal ? → FS1,FS2 Fuse check! 5v , Va short check! → Disconnect X-Board(Va) connector

- Unable to check voltage (P804,P805) when disconnecting Y-SUS connector due to protect, only 50"

No Raster check point

No picture

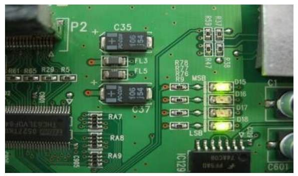
- **Check the back light if there is small maldischarge from module.**
- **Check normal sound & channel change.**
- **Check normal connection of all connectors.**
- **Check Low/High Voltage except Stand-by**

Is Y-board normal ? → Vs , Va , Vsc , -Vy Voltage Check

Is Z-board normal ? → Vzb , Vs , Va Voltage Check

Disconnect X-Board(Va) connector

Is M-CTRL normal ? → Check M-CTRL LED (3)

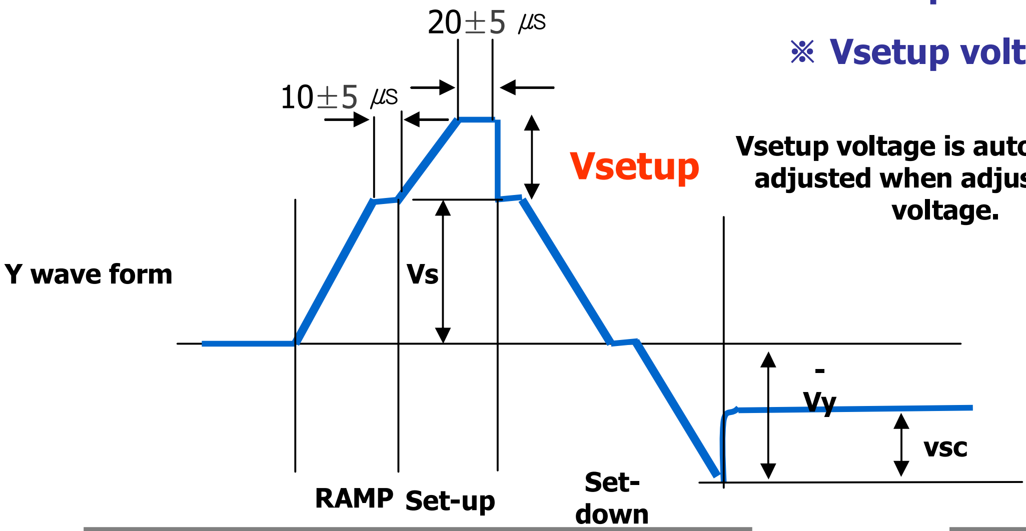


Module check point

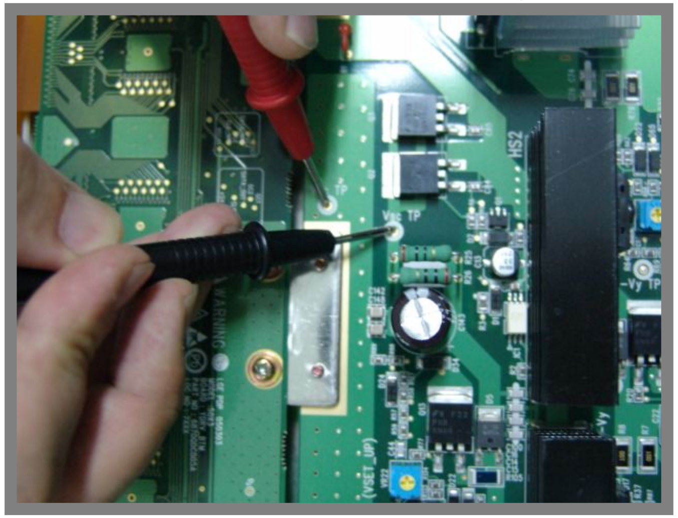
※ Check the output voltage of Y- B/D.

※ Vsetup voltage is the same as -VY, Vsc. label voltage.

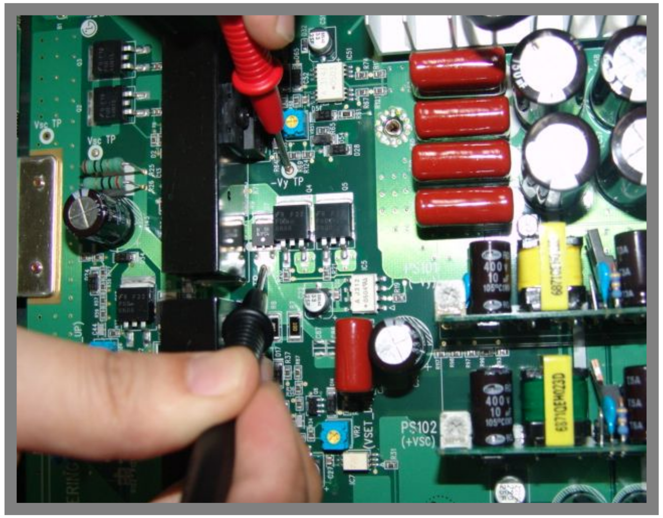
※ Vsetup voltage can be measured only with osilloscope.



Vsetup voltage is automatically adjusted when adjusting vsc voltage.

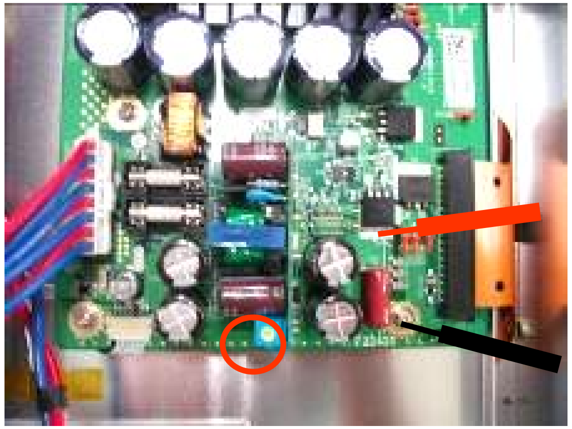


< Check Vsc >



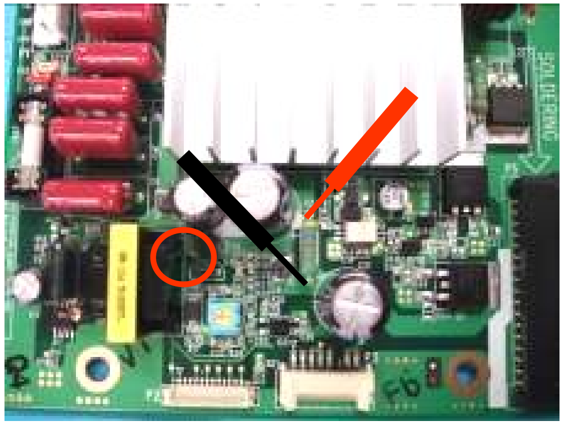
< Check -Vy >

MODEL : PDP42X30001



Z-BOARD Vzbias
GND-Q18

MODEL : PDP42V706A2

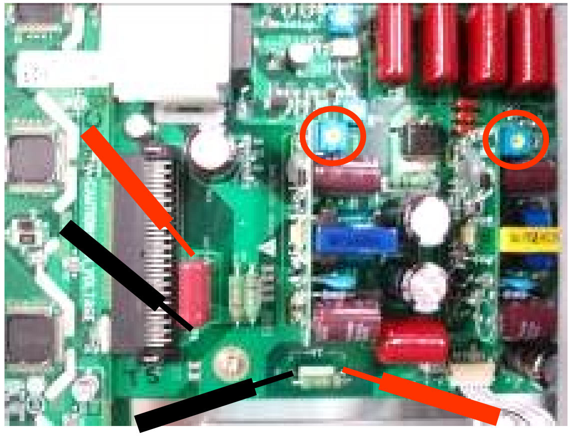


Z-BOARD Vzbias
R23 Both ends

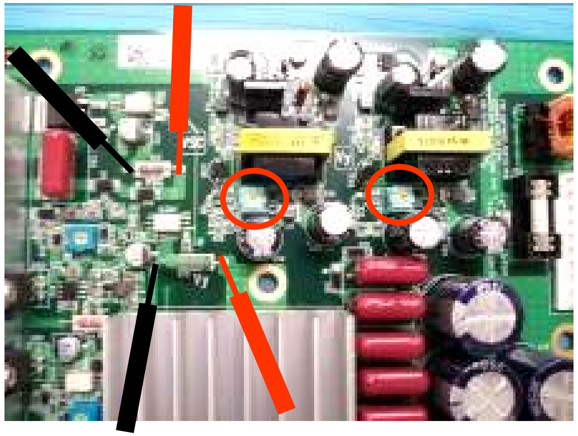
MODEL : PDP50X30010



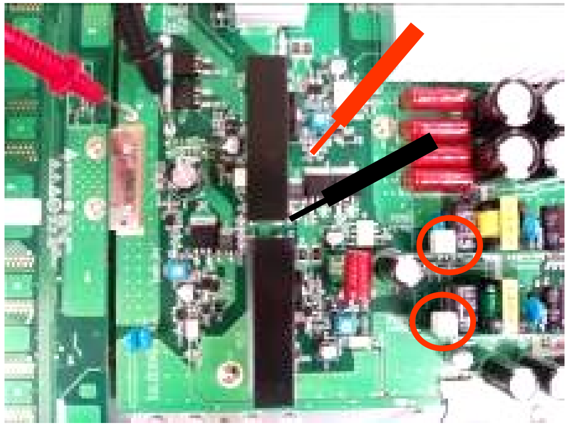
Z-BOARD Vzbias
R111 Both ends



Y-BOARD **VSC C51 Both ends**
-Vy R36 Both ends



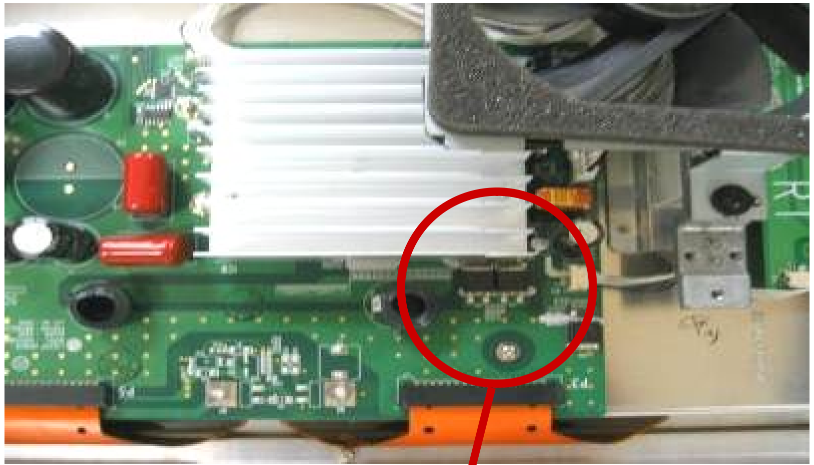
Y-BOARD **VSC R53 Both ends**
-Vy R78 Both ends



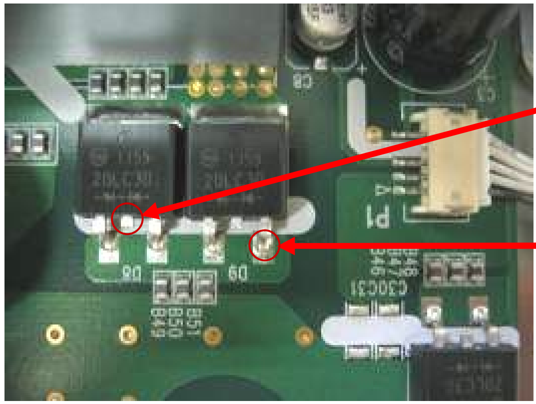
Y-BOARD **VSC TP Both ends**
-Vy TP Both ends



Defect : Dark screen



Voltage Check Point



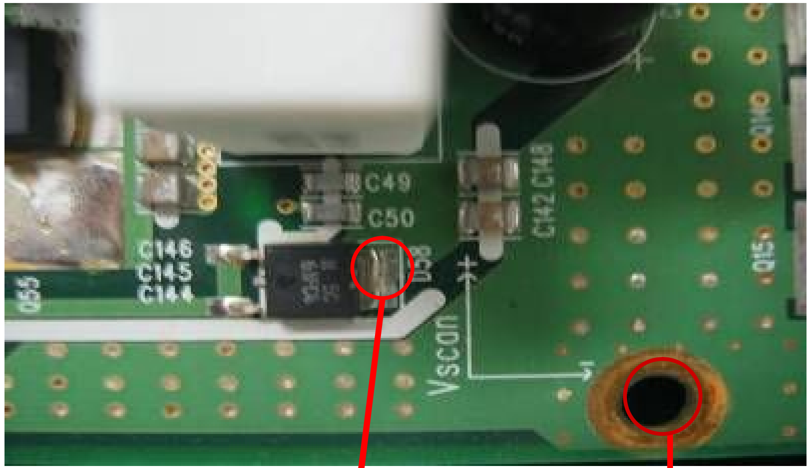
Defect : 187V
Normal : 187V

Defect : 35V
Normal : 115V

- **Defect : Dark screen**
- **Cause : Output voltage drop by short in IPM**
- **Measure : Replace Z - sus**

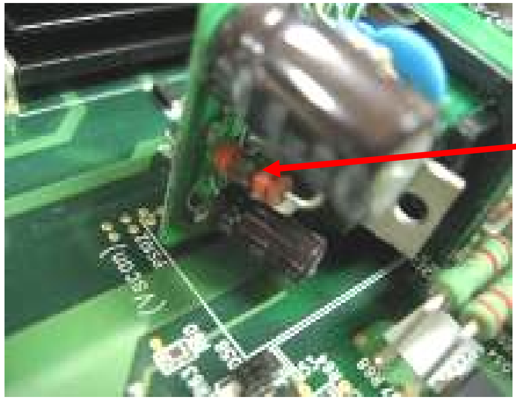


Defect : Dark screen by maldischarge



Vscan TP GND

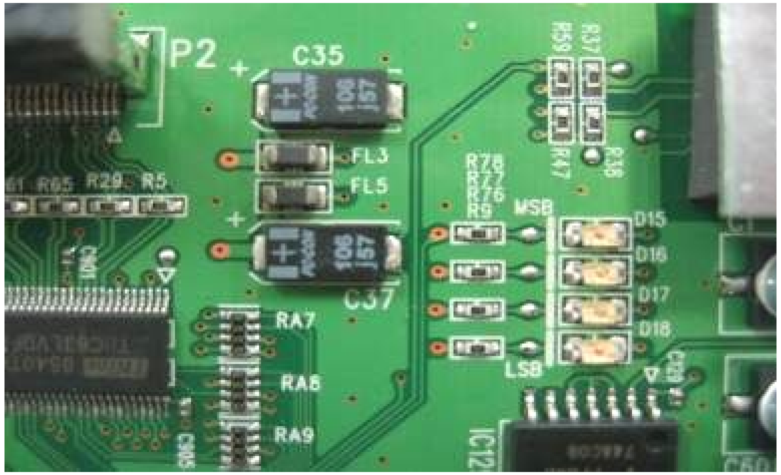
Voltage Check Point

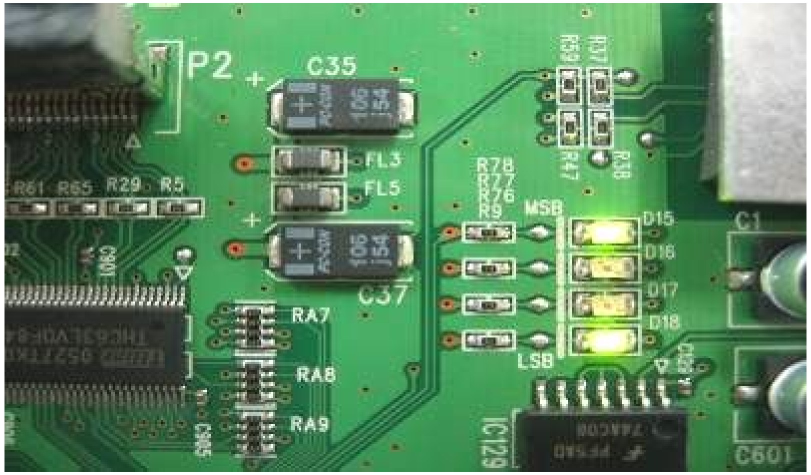


PS 102 Pack dead

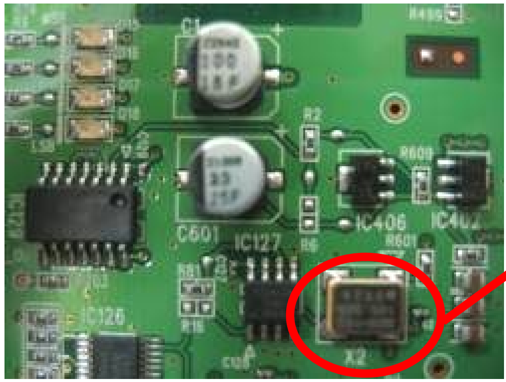
- Defect : Dark screen
- Cause : Vscan voltage drop by PS 102 Pack dead
- Measure : Replace Y - sus

Module check point





Defect Condition **D15,D18 radiate under normal condition**



Oscillation defect by X2's own characteristic

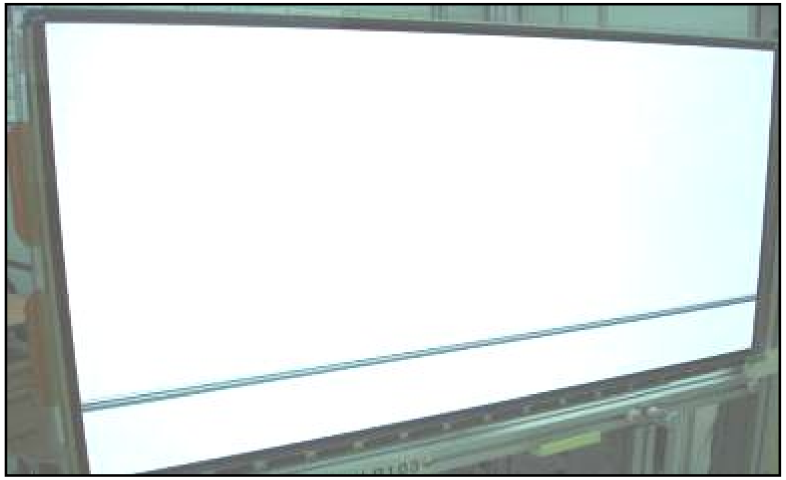
Defect : No Picture

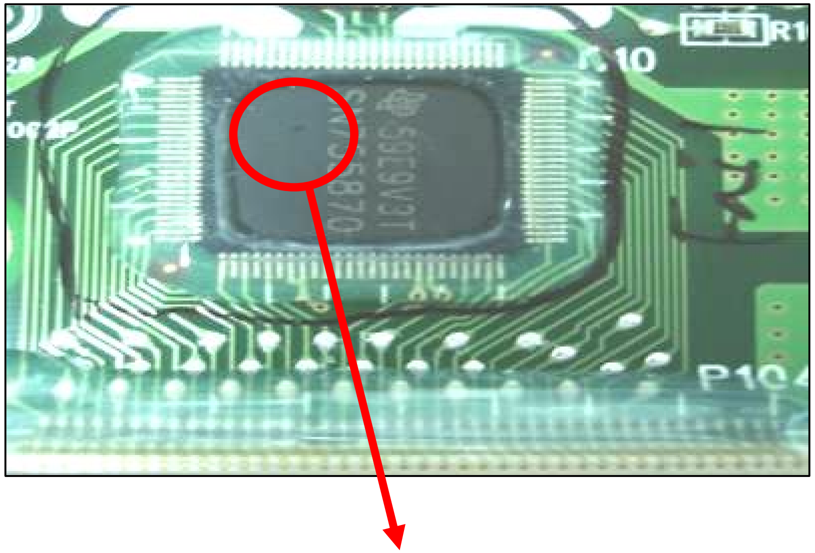
Cause : X2 Characteristic defect

Measure : X2 or M-CTRL change

P/No : 6871QCH060Q

Module check point





Defect Condition

Visual check of YDT-BTM

Horizontal bar displays on terminal 1-6 due to no Scan Pulse by Scan IC Fail.

When horizontal bar displays, the defect can be checked by visual check.

Check Scan IC No. 10 Burnt when YDV_BTM check.

Defect : Horizontal Bar

Cause : SCAN IC terminal 1 -6 BURN

Measure : YDT – BTM Change

P/No : 6871QDH091B



3. Module Change History



Module Change History

MODEL	MODULE USED
42PX4D 42PX4DR 42PX4DRB 42PX4DRK 42PX5D	42X20022 42X20422 42X20442 42X20862 42X20852 42X20892 42X20882 42X30001

6348Q-E074Z	42x20022
6348Q-E101A	42X20422
6348Q-E101S	42X20442
6348Q-E101Z	42X20862
6348Q-E101Y	42X20852
6848Q-E120N	42X20882
6348Q-E121A	42X20892
6348Q-E066Q	42X30001
6348Q-E066H	42X30201
6348Q-E139N	42X30401

CHANGE HISTORY

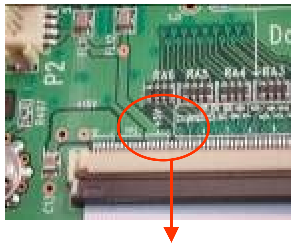
*X2A=>X3 Module change

*022,422 = FAN
*442~882 = NO FAN

*Apply maldischarge ROM
20022=Blue Module
20422~20882=Clear Module
30001~30401



X2A 5V Terminal
From Power B/D



X3 5V Terminal
From Y-B/D

ISSUE !

*X2A=>X3 Change,
-Check CPLD Version 42X3=1.6
-Connect Power & M-CTRL, 5V cable is not necessary!

*X3 =>X2A Change,
-Check CPLD Version 42X2A=1.0
-Connect Power & M-CTRL, 5V cable is not necessary!

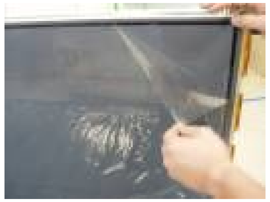
*S/W	FAN	Last digit 0(X.XX.0)
	NO FAN	1(X.XX.1)
	X3 Module	2(X.XX.2)

*Currently D-B/D has X3 version which must be checked (CPLD,ROM Ver)



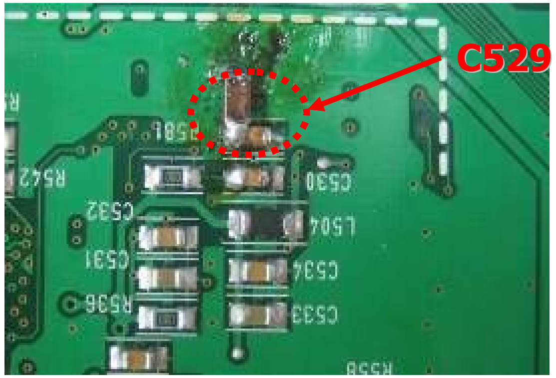
Defect by applying maldischarge

Module Change History

MODEL	MODULE USED	CHANGE HISTORY	ISSUE !
42PB2DR 42PC1D 42PC1DB	42X30201 42X30401	Transmission factor :201 45% 401 40%	*Remove protection tape when module changed *Had a case of wrong module use (using module without filter) *S/W check X30201:X.XX.2 (last digit) X30401:X.XX.1 *Wrong operation of timer under Micom Ver 3.05 (42PB,50PB Models only)
42PC1DRW	42X30401		*Remove protection tape when module changed If the tape is not removed, brightness decreases, bubbles & scratches may occur. *Only 42X30401 Module can be used

Module Change History

<table>
<tr><th>MODEL</th><th>MODULE USED</th><th>CHANGE HISTORY</th><th>ISSUE !</th></tr>
<tr>
<td>42PX3DV
42PX3DVB
42PM3RV
42PX3DVA
42PM3RVA</td>
<td>42V706A2
P/No:6348Q-E115G
604K442V7016669.AKLGG
LG Electronics Inc. Date 2006.04 Made in</td>
<td>V7=Apply maldischarge ROM
Voltage check for maldischarge
-Vs :187V
-Val : 65V
-Vs. : 115V
--Vy :80V
-Vzb:165V</td>
<td>*Compatibility of Improved B/D

<table>
<tr><th></th><th>P/N(Before)</th><th>Ass'y P/N (After)</th><th>Ass'y Composition</th></tr>
<tr><td rowspan="4">Y-B/D</td><td>6871QYH036A</td><td rowspan="4">6871VSNB03E</td><td>6871QCH053G(CTRL)</td></tr>
<tr><td>6871QYH036B</td><td>6871QYH036D(Y-sus)</td></tr>
<tr><td>6871QYH036C</td><td>6871QZH041B(Z-sus)</td></tr>
<tr><td>6871QYH036D</td><td></td></tr>
</table>
</td>
</tr>
<tr>
<td>DN-42PX12X
DN-42PX13X
DN-42PY11X
DN-42PM2D</td>
<td>42X20000
P/No:6348Q-E042D</td>
<td>42X2=>X2A</td>
<td>X2=>X2A Change,
*Download Spec S/W for picture flickering


MODULE X2 → X2A change,
Use DIGITAL B/D under 6870VM0526G
ex) 6870VM0526E, 6870VM0526A, etc.</td>
</tr>
</table>

Module Change History

MODEL

50PY2DR
50PX4D
50PX4DG
DN-50PM2D

50PY2DR1
50PY2DR2
50PY2DRG
50PX5D
50PX4D1
50PB2DR
50PC1D
50PC1DRW

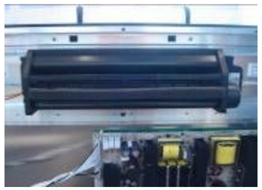
MODULE USED

50X20562
P/No:6348Q-036H

50X30000
P/No:6348Q-C039B
50X30010
P/No:6348Q-049N

CHANGE HISTORY

-Maldischarge ROM can be applied



Low-noise FAN

ISSUE !

***Version History by Maldischarge ROM Model**

No	Ver	Module
1	42X2DNCS1	42X20000
2	42X2DN05B	42X20000
3	42X2ADN07A	42X20022
4	42X2A_TDCS	42X20???
5	50X2A_DNCS1	50X20562
6	50X2A_DNCS2	50X20562
7	42V73CS4AD	V7 _With VZ_A2
8	42V73DNCS1	V7 _W/O VZ_A2
9	42V74DACS1	V7 _W/O VZ_A3
10	42V74DN3G	V7 _W/O VZ_A3

***Picture getting darker while watching**
Cause: Protection circuit operation by inside temperature rise
Measure: 1.ROM download in CTRL-B/D(50X3DN03E)
2.Remove Rubber under CTRL-B/D
Model: 50PY2DR1,2,G =>Apply 1 & 2
Model: 50PX5D,4D1,PB2DR,PC1D,1DRW => Apply 2 only



Module Change History

MODEL	MODULE USED	CHANGE HISTORY	ISSUE !
55PB2DR	**OEM Fujitsu** P/No:63489FH001A		***Power ON/OFF when watching program recorded by reservation, Vertical BAR -> S/W Download Ver 3.01.0=>3.02.0**  Defect
DN-60PY11 **60PY2DR** **MN-60PZ90** **MN-60PZ95,V** **DN-60PZ10**	**60X50554** P/No:6348Q-B038F **60X60000** P/No:6348Q-B040A **60X50330** P/No:6348Q-B037F	**Change replacing module**	***Additional work required by DC/DC BOARD deletion** **Cable, Fan added** **(Assy comes with module)**

60” MODULE REPLACEMENT

Model : 60PZTOOL ALL

Cause of Replacement : Replace X5A with X6 SVC due to the discontinuance of the item requested by CS

Details of Changes (Improvement)

- **Wiring in MODULE (Circuit Part)**
- **Disassemble the fan mounted in X5A**
- **Assemble new fan for X6 MODULE**

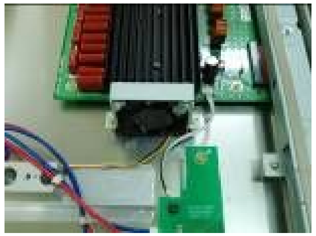
How to do

- **Open up the B/C COVER**
- **Disassemble MODULE SUPPORTER. (P/N :4980V00487C)**
- **Disassemble AV PLATE.**
- **Unscrew MODULE and replace with new MODULE.**
- **Disassemble the Fan of Z-Board while replacing MODULE and scrap.**
- **Assemble new Fan 4980V01152A to MODULE PEM-NET.**
  (Screw used : 332-241D 2EA)
- **After assembling the fan, link connectors.**
- **PSU ←→ Y-Board Cable: replace with 400mm**



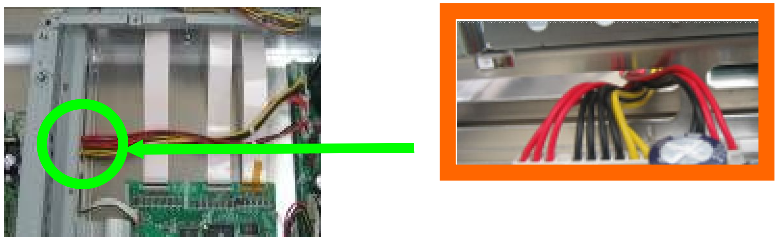
X5A Z-BOARD FAN

(Before)



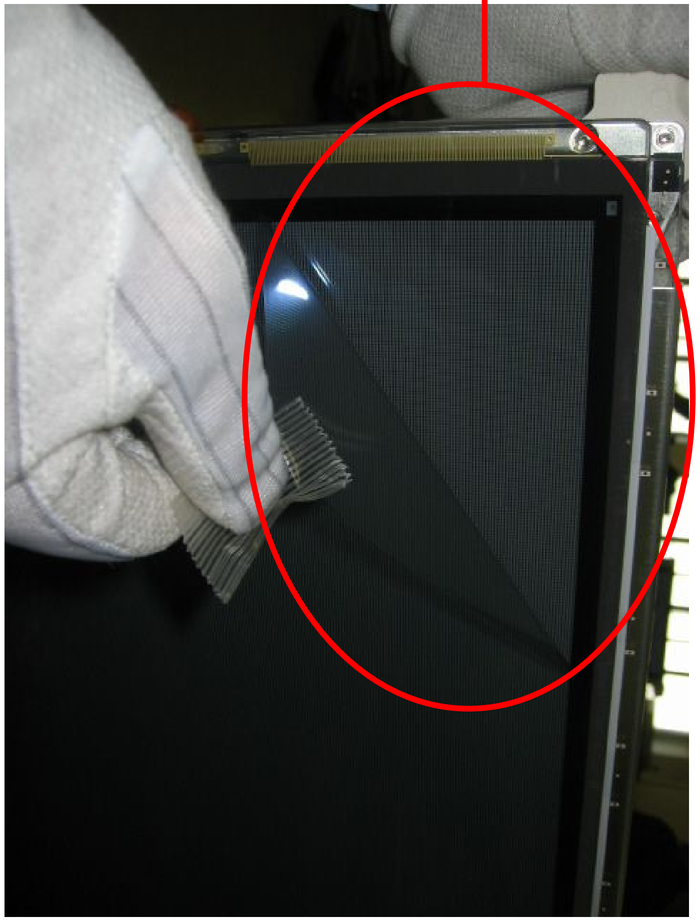
X6 SVC MODULE Z-BOARD FAN

(After)



(CABLE P/N : 6631V39002H → 6631V39002P,
6631V39002B → 6631V39002C)

42" Protection Tape Removal



*Model Applied

-42PX3DV-NC

-42PX3DVB-NC

-42PM3RV-NC

-42PM3RVA-NC

-All models with clear filter

*How to remove: Protection tape is hard to be seen when you change module. You can use an adhesive tape at the end of module corner to remove the tape.

If the tape is not removed you might not have problems in the short run, but a claim by the inflow of inside air in module could be brought

HDD Application for Low-Noise AV HDD

Model: Plasma:42PX4DR,42PX4DRB,42PX4DRK,50PY2DR,50PY2DR1/2,50PY2DRG,60PY2DR,60PY2DR1,60PY2DRK

LCD TV: 42LP1DR-NA

Time of Application : All items with Lot No. which was manufactured before March

Defect condition : HDD noise

Cause : HDD noise by using HDD for PC (P/N:6744B00040A)

Details of Change (Improvement) & Counterplan
Replace HDD for PC (P/N:6744B00040A) with low-noise HDD for A/V (P/N:6744B91953A).

※How to identify HDD for PC & Low-noise HDD for AV.



Seagate Label is located on the left
→Low-noise HDD for AV (P/N:6744B91953A)

Seagate Label is located on the right
→HDD for PC (P/N:6744B00040A)



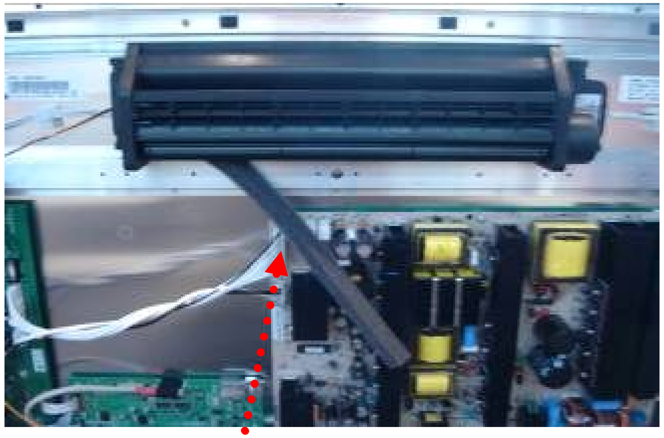
In addition! Use Rubber to prevent noise
P/No : 5040V00101B
***Rubber changed from hard material to soft material**

SVC: Replace HDD for PC with low-noise HDD for AV.

Anti-Noise Cushion Being Off the Fan



When Checking Power off



Anti-noise cushion is off the Fan and rolled up into the Fan

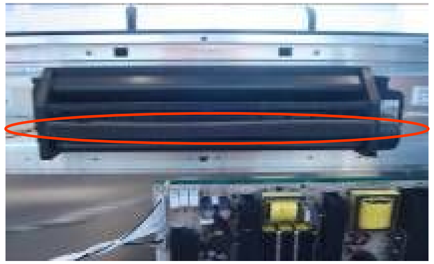
Model : 50PB2DR

Condition : Power being turned off automatically in seconds

Cause : The cushion to prevent noise of fan is off the fan due to poor adhesion and get into the fan resulting in power off

Measure : Put double-sided adhesive tape and attach to the fan

#It is estimated that same problems will cause lots of troubles later (Checking adhesive strength of tape is required)



After attaching new cushion

POWER OFF MODE STATUS

POWEROFF MODE	MODE State & Meaning
POWOFFMOD_KEYTIMEOUT	Try Power OFF while CPU is dead
POWOFFMOD_RESET	Reset Micom for AC is OFF (Same as ACDET, which is not in use any more)
POWOFFMOD_5VMNT	Check Micom if 5V is detected at multiboard when 5V is released from Power If the Voltage is lower or higher than 5v, turn power off
POWOFFMOD_ACDET	AC is OFF (Cord is pulled out)
POWOFFMOD_KEY	OFF by Key (Remote control/Local key)
POWOFFMOD_OFFTIMER	OFF by Reservation
POWOFFMOD_SLEEPTIMER	OFF by Reservation
POWOFFMOD_NOSIG	OFF by No signal while recording by reservation
POWOFFMOD_FANSTOP	OFF by stopped Fan
POWOFFMOD_INSTOP	OFF when pressing down INSTOP

POWEROFF MODE	MODE State & Meaning
POWOFFMOD_AUTOOFF	Auto OFF from adjustment menu (factory mode)
POWOFFMOD_ON2HOUR	OFF by No signal or input for 2 hours
POWOFFMOD_RS232C	Commercial Item (N/A)
POWOFFMOD_RESREC	OFF when ending reserved recording
POWOFFMOD_RECEND	OFF when reserved recording ends (Recording is ending while module is off)
POWOFFMOD_SWDOWN	OFF after S/W Download
POWOFFMOD_ CPUABNORMAL	Shut down after failing reset under exceptional condition for CPU during recording by reservation or recording (warm standby state)
POWOFFMOD_HOMINGCOMP	DCR related, OFF after completing cable card firmware download (homing) (For N. America)
POWOFFMOD_UNKNOWN	No meaning (Same as default)



4. S/W Download

1) Instructions for Maldischarge ROM Download

2) Instructions for DTV Lab (Common to LCD)

3) Instructions for Memory Card (Common to LCD)

4) PDA Instructions (Common to LCD)



1.Maldischarge ROM Download



PCDownload Cable



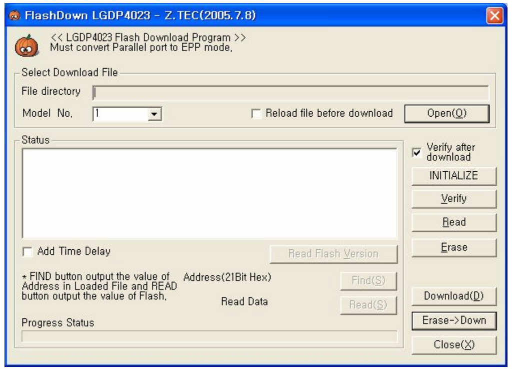
Module 15P Cable Connector



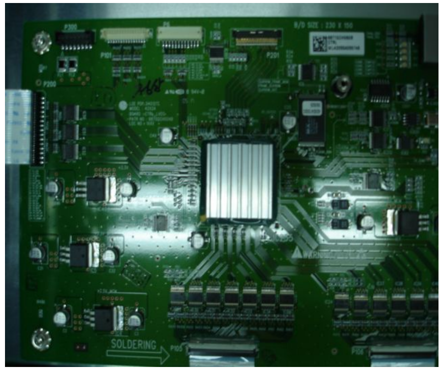
Jig Power Connector



Jig



Flash download for LG PDP



Control / Board

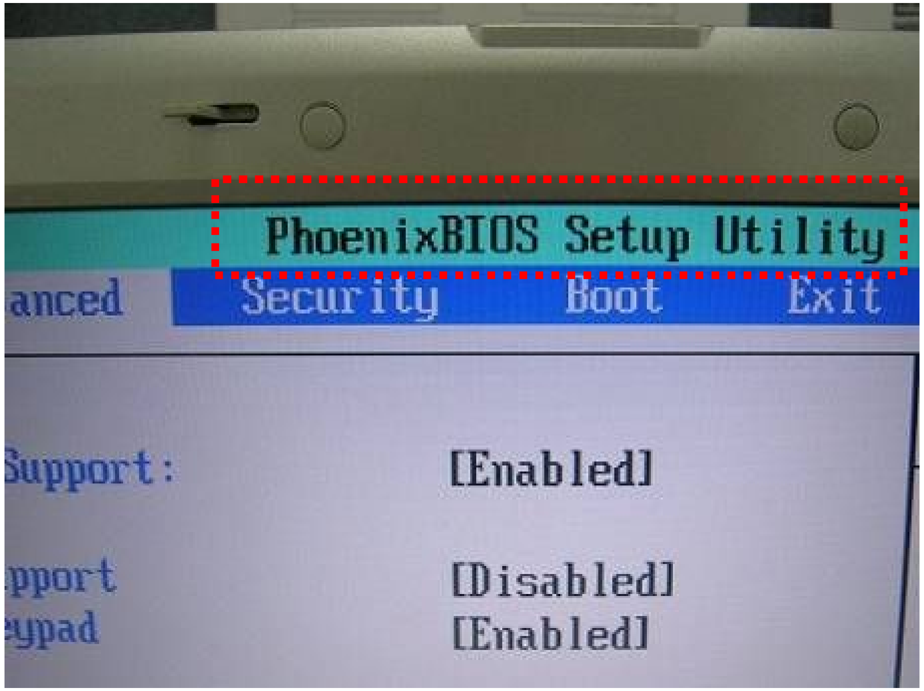
1.Maldischarge ROM Download

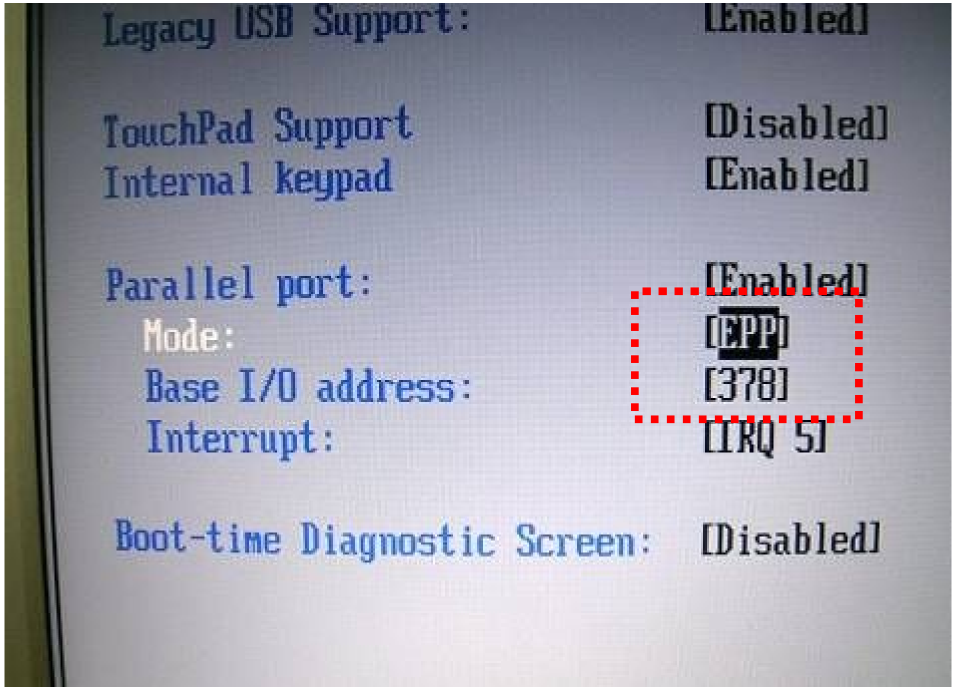
BIOS setup

For Flash-ROM Downloading,

Switch CMOS (Rom BIOS setting) Parallel Port Mode to EPP.

Set Base I/O address to 378.





Run BIOS setup

Set MODE → EPP Set base I/O address → 378

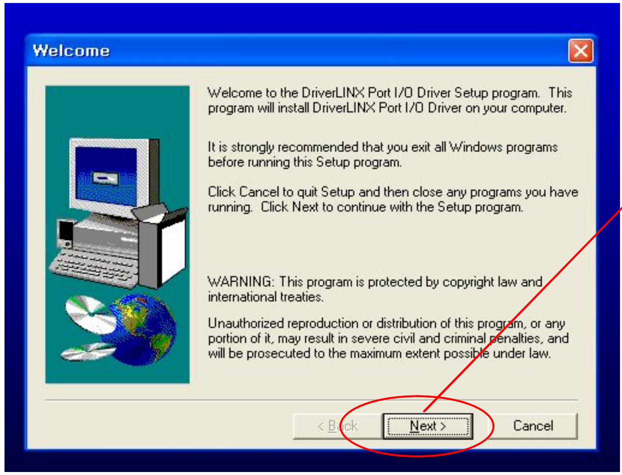
1.Maldischarge ROM Download

1) Install Flash Download in PC



Open up EPROM WRITER.alz which is a compressed file with ALZip, and extract Port95nt.exe file to set up.



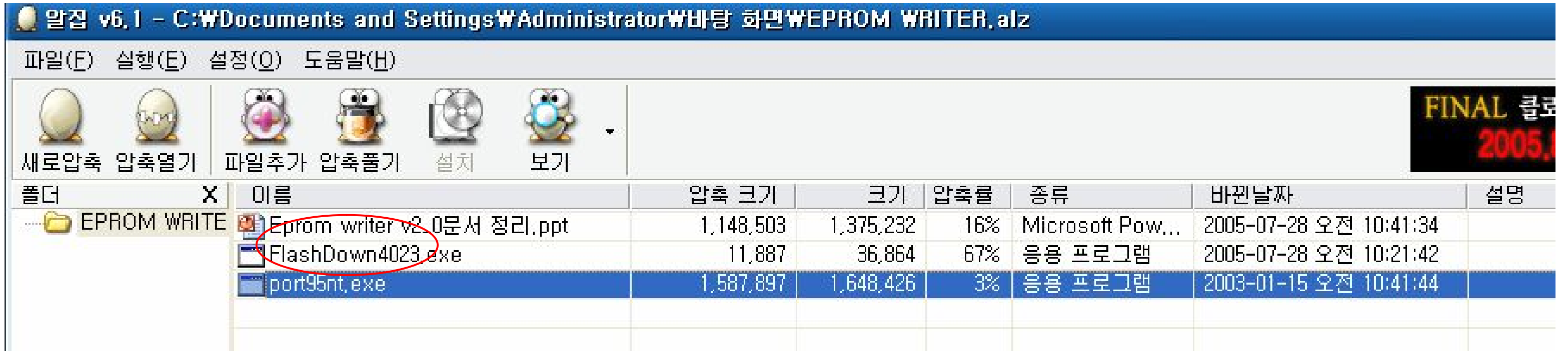


For Setting-up, Keep clicking on Next until Finish appears.

1.Maldischarge ROM Download

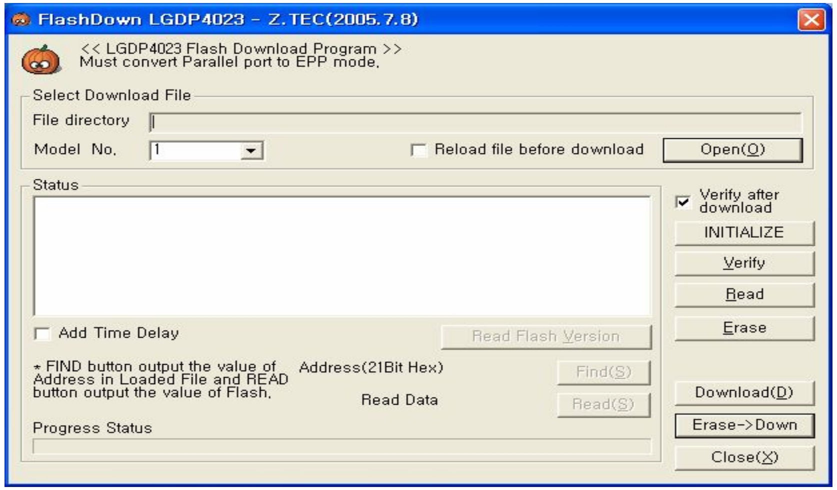
Running Program

2) Run Flash Download



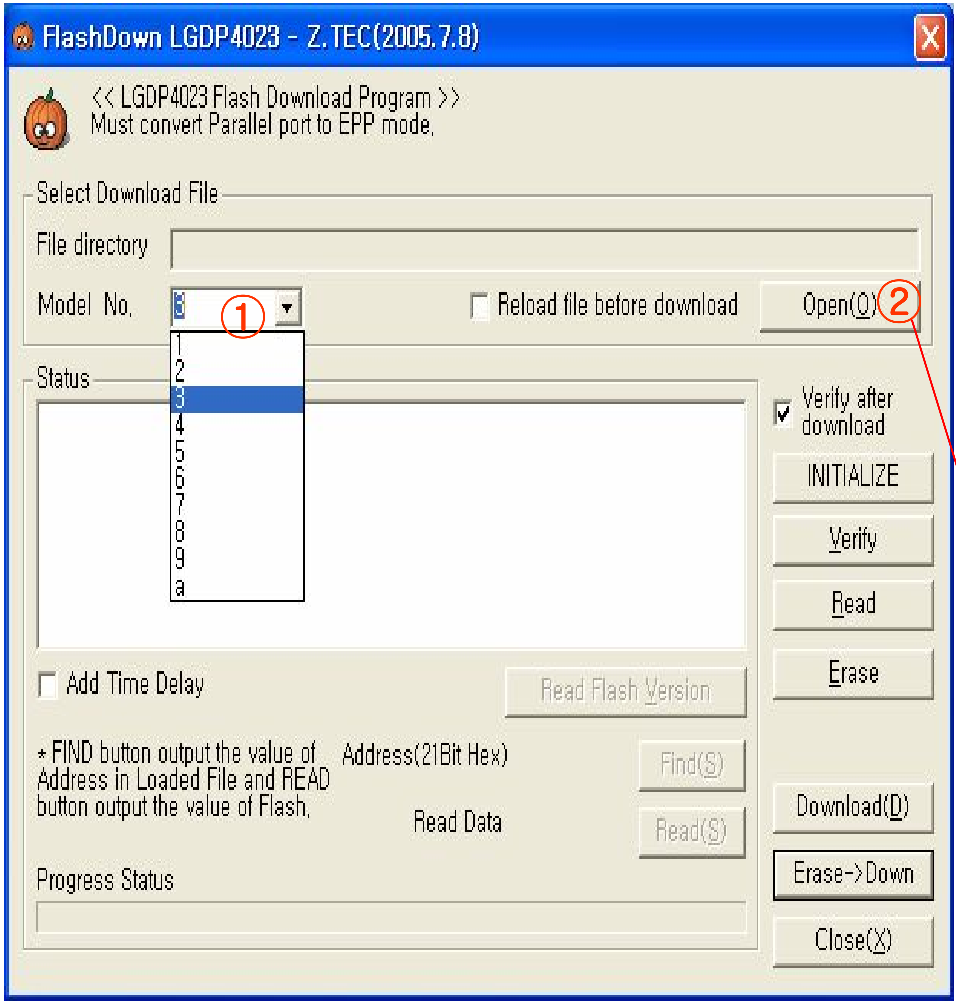
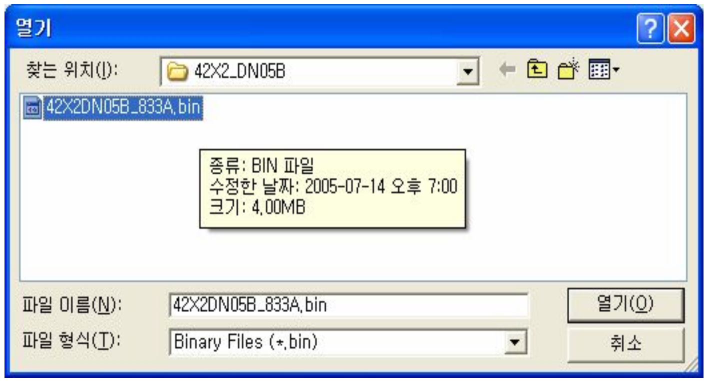


After extracting compressed file, FlashDown4023.exe icon is created as shown on the left. By running the file the following picture pops up.

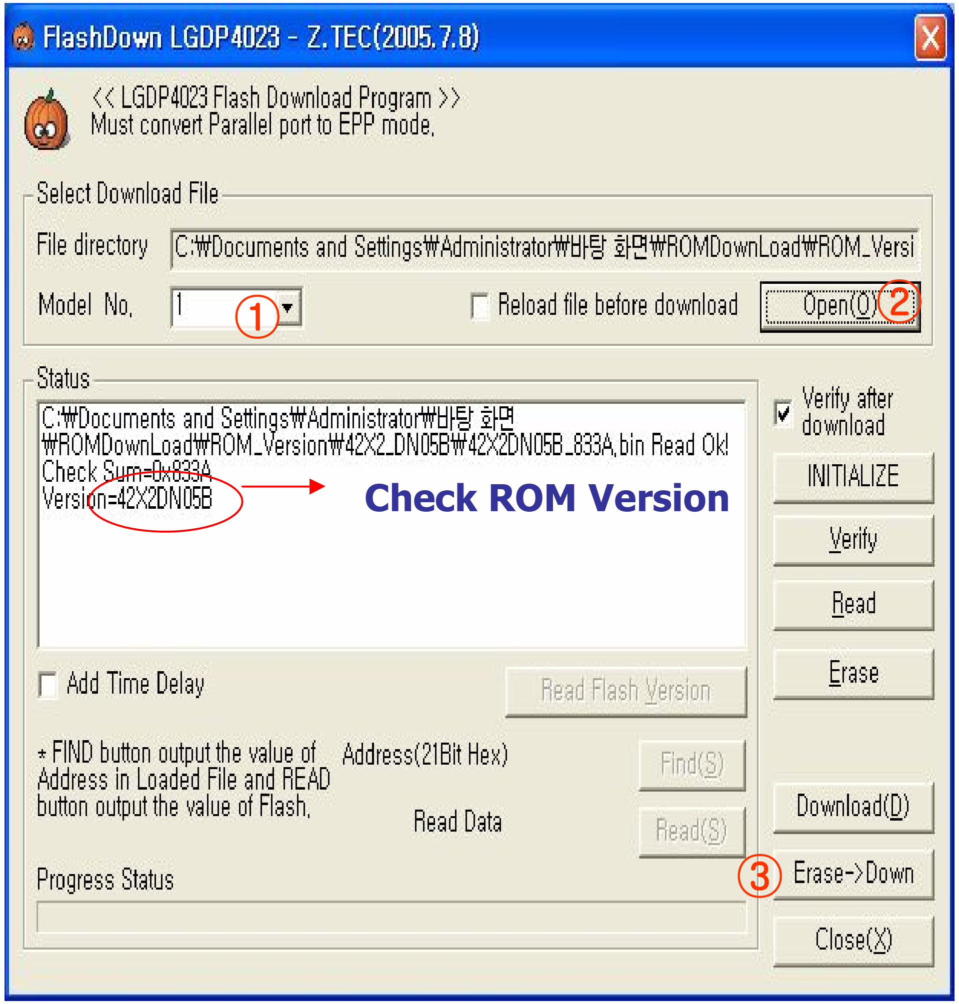


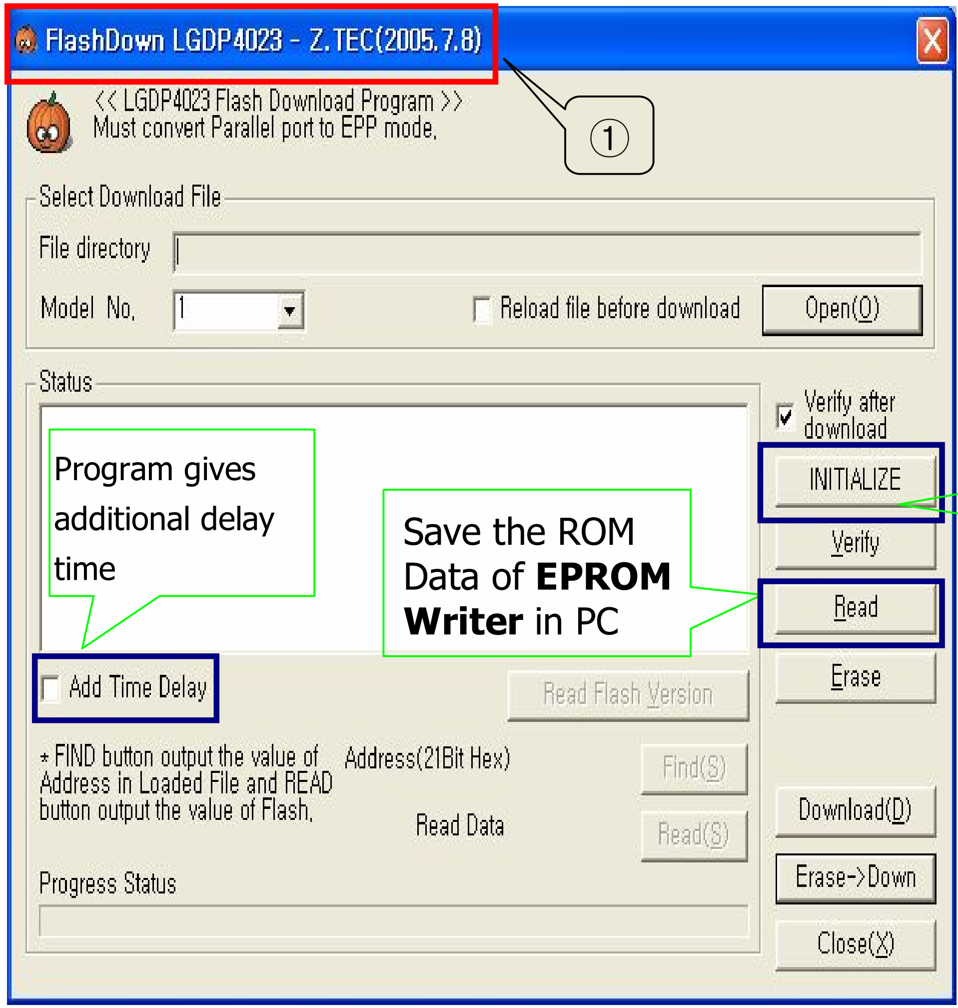
If the left picture doesn't display by running FlashDown4023.exe, recheck the installation of Port95nt.exe file and install the file if it's not installed

1.Maldischarge ROM Download

2) Flash Download Program	Running Process & Details
	① **Model No.** By clicking Model No. the number of saved model displays from 1 to a (10 at maximum). Specify Model No. ② **Open (O)** Open file after specifying Model No. Select ROM file in *.bin form to download. 

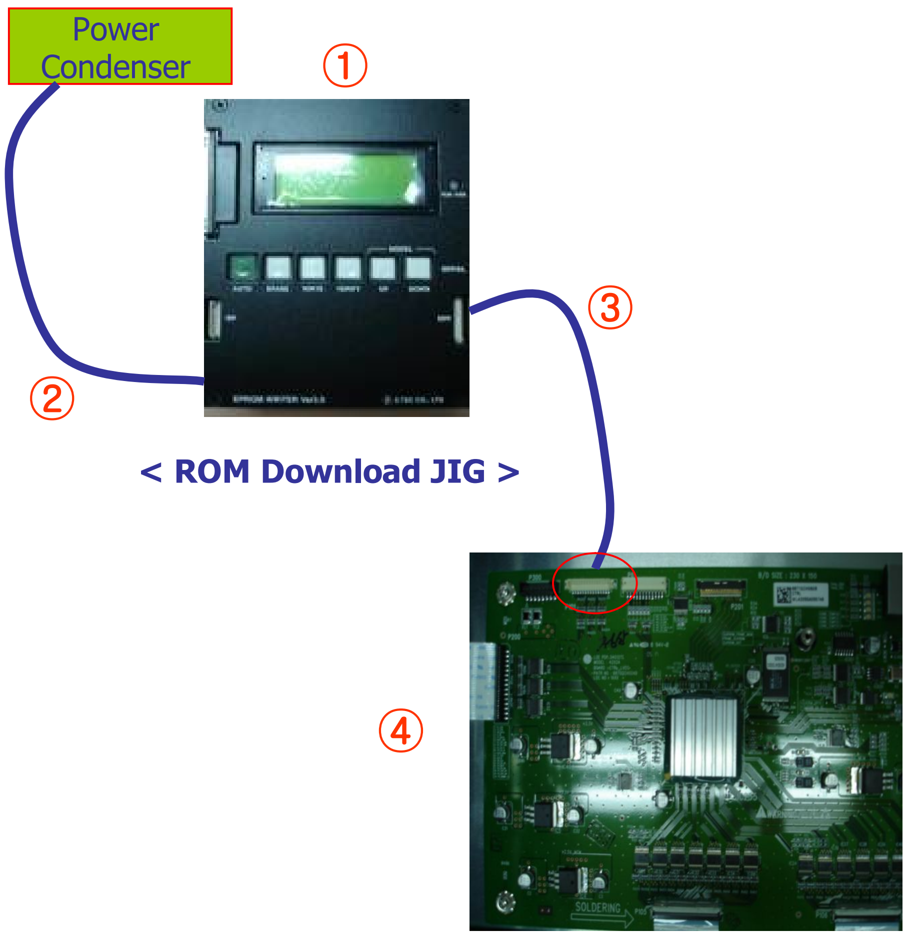
1.Maldischarge ROM Download

2) Flash Download Program	Running Process & Details
	**③ Erase=>Down** Erase existing ROM Data and it runs automatically again to Download. **Progress in ① ➔ ② ➔ ③ order** **※ Always Check ROM Version when Downloading !!**

3) Other functions & Cautions	Details
	Check the version of ① is the same as the date on **LCD** window when the first power of **EPROM Writer** is applied. The Green **LED of EPROM Writer** will be ON when normal operation. (RED **LED** is **ON** if it's error) **If communication is difficult by errors in operation, remove 25P print cable and press down INITALIZE key to initialize the print port and try again**

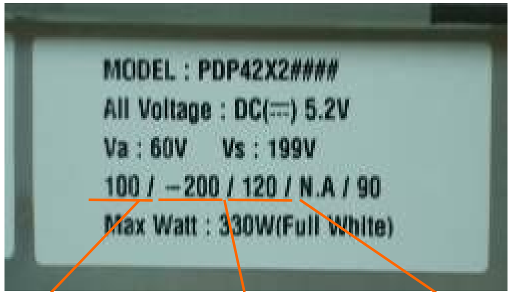
1.Maldischarge ROM Download

- To change Mode, press down MODEL Up, Down simultaneously and turn power ON when the first power is ON
- (Ser->Epp, Epp->Ser : Epp(General Mode), Ser(Serial Communication Mode [Phone jack])
- Always check the Mode when power is ON.
- When program is not downloaded, the program version doesn't display at the first Power On.
- Be sure to check the version of program before downloading.
  - If you didn't check the download could be duplicated
- Center LCD is lighted when power is ON.
- By pressing function key, green LED on upper right is ON and starts to operate.
- When it's downloading green LED is flickering.
- When error occurs during operation red LED is ON.
- Should press down key more than 0.3 second to operate(to prevent wrong operation)

4) JIG ←→ Control Board	Details
 < ROM Download JIG > < Control Board >	① **ROM Download JIG** ② **Power Connector** ③ **15P Cable Connector** Connects JIG and Control Board  ④ **Control Board** Where ROM is downloaded

1.Maldischarge ROM Download

< Voltage Label >



1) **Vset_up (100 -> 80V)**

Turn Y Sus Q22 clockwise (to the right) in full when measuring waveform is difficult.

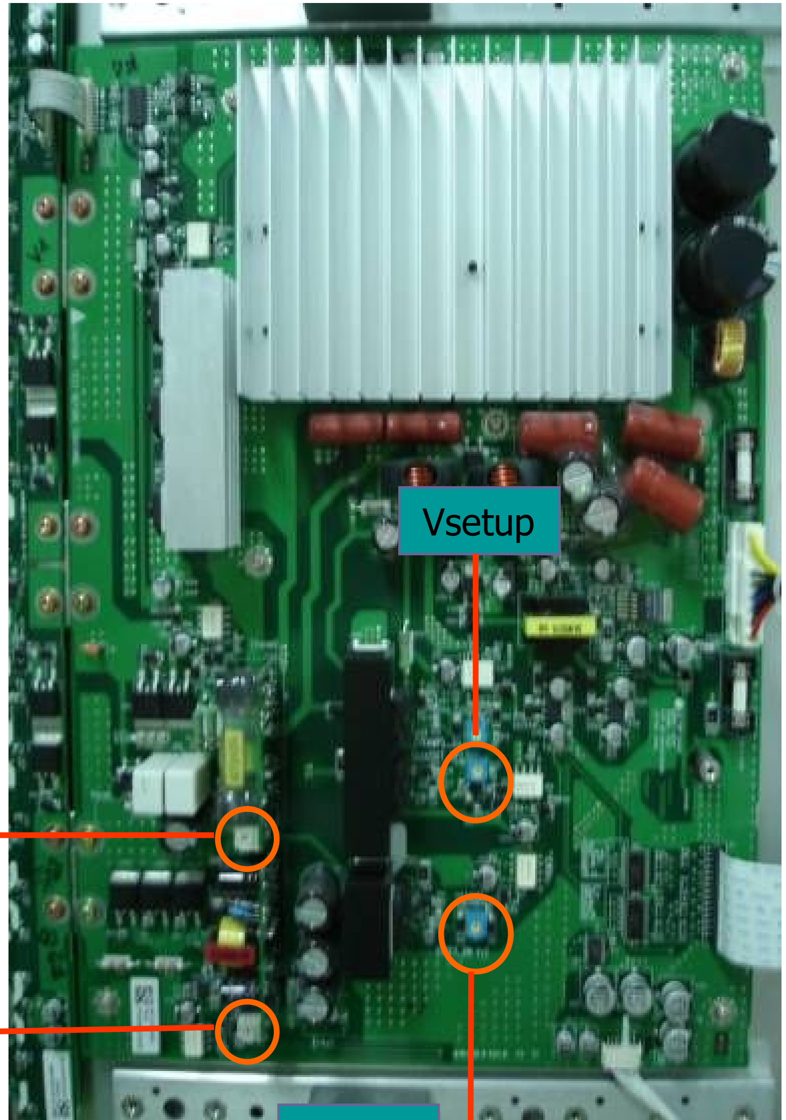
2)**Vs 198V -> 195V (Power supply voltage adjustment)**

3) **-Vy 200 -> 195V**

4) **Vzb 100V -> 90V**

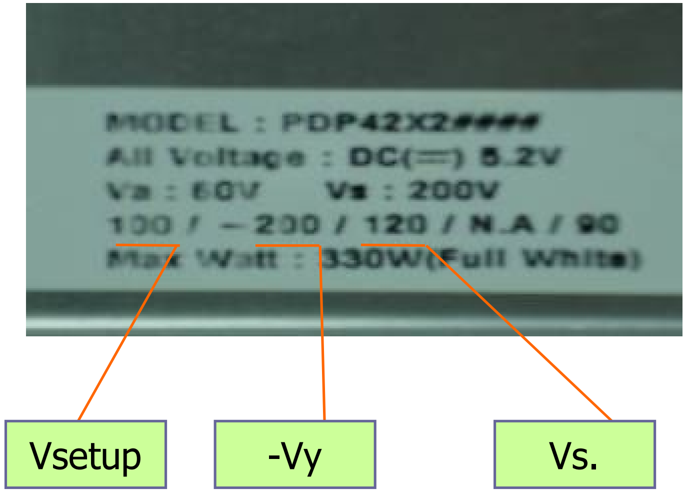
(Another adjustment is not necessary since outgoing spec is 90V recently)

So, only 1), 2), 3) can be done for voltage adjustment.



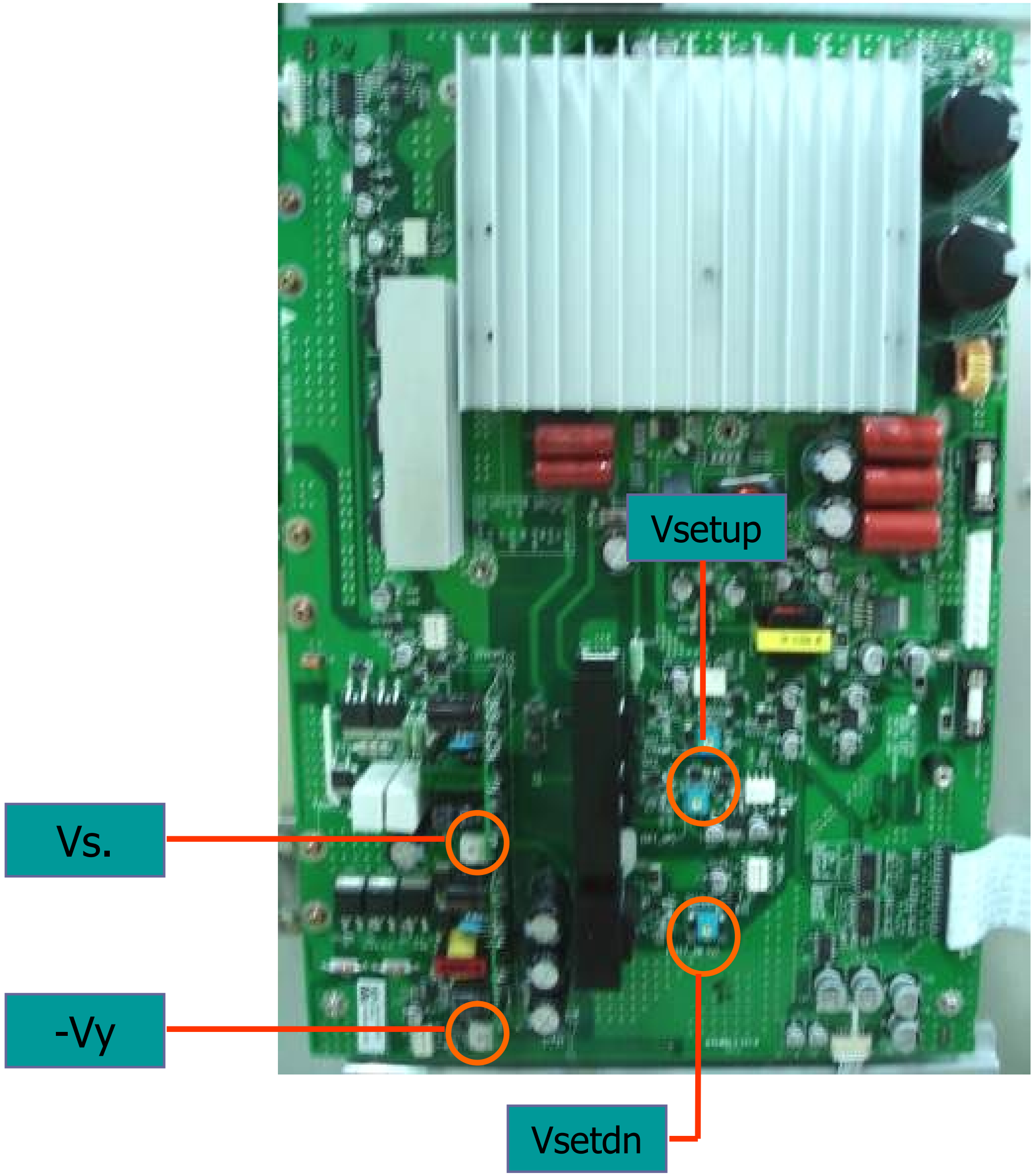
1.Maldischarge ROM Download

< Voltage Label >



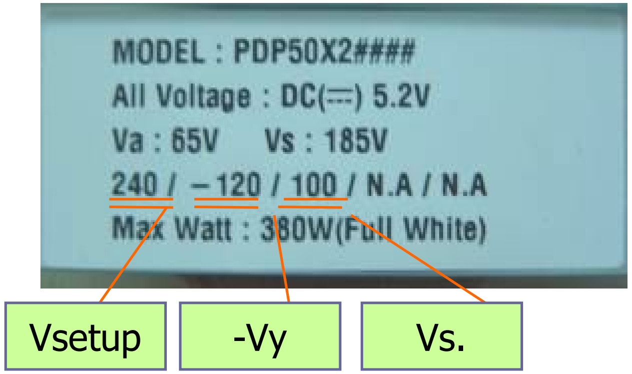
42X20022외

Voltage adjustment is not necessary



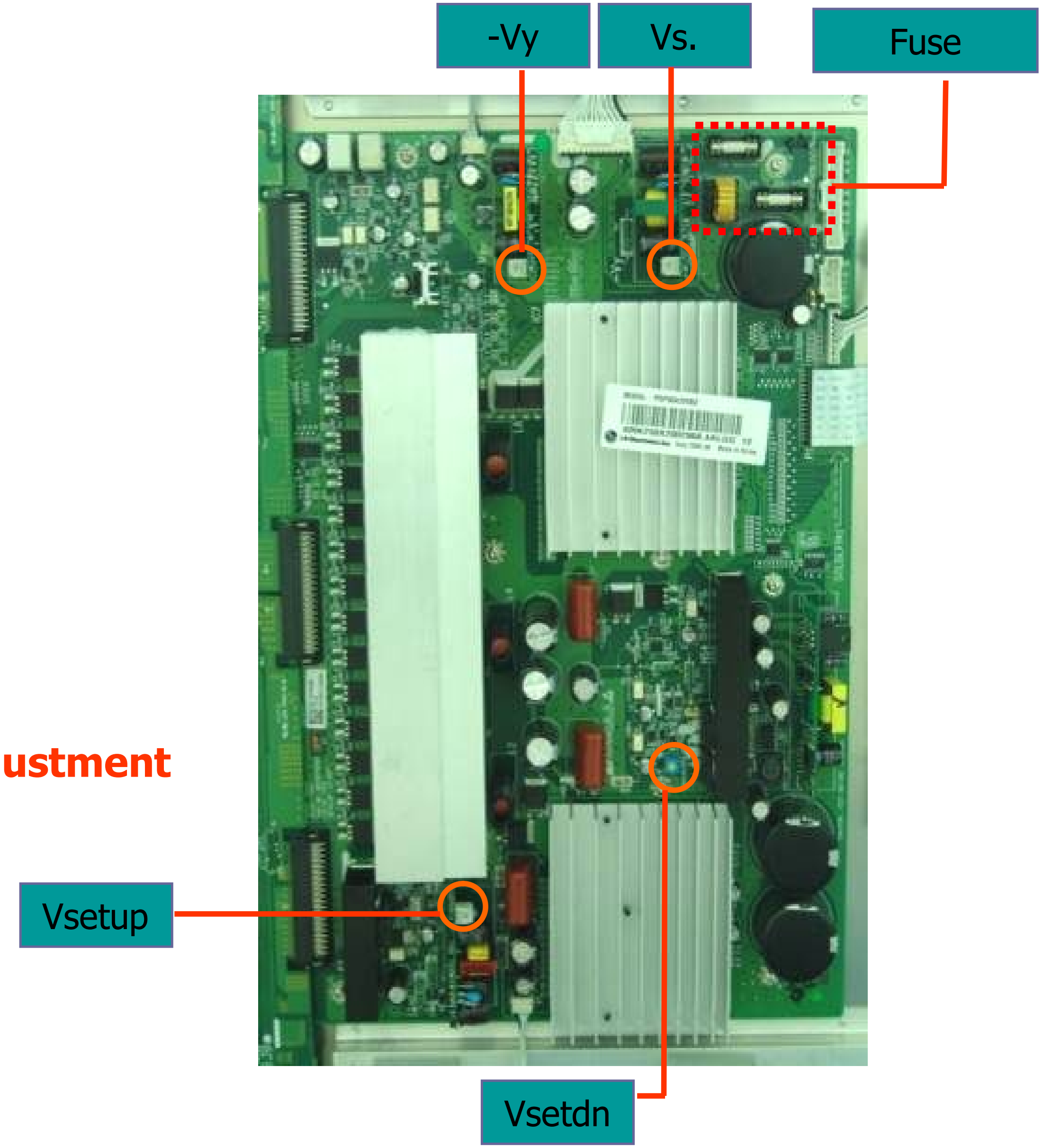
1.Maldischarge ROM Download

< Voltage Label >

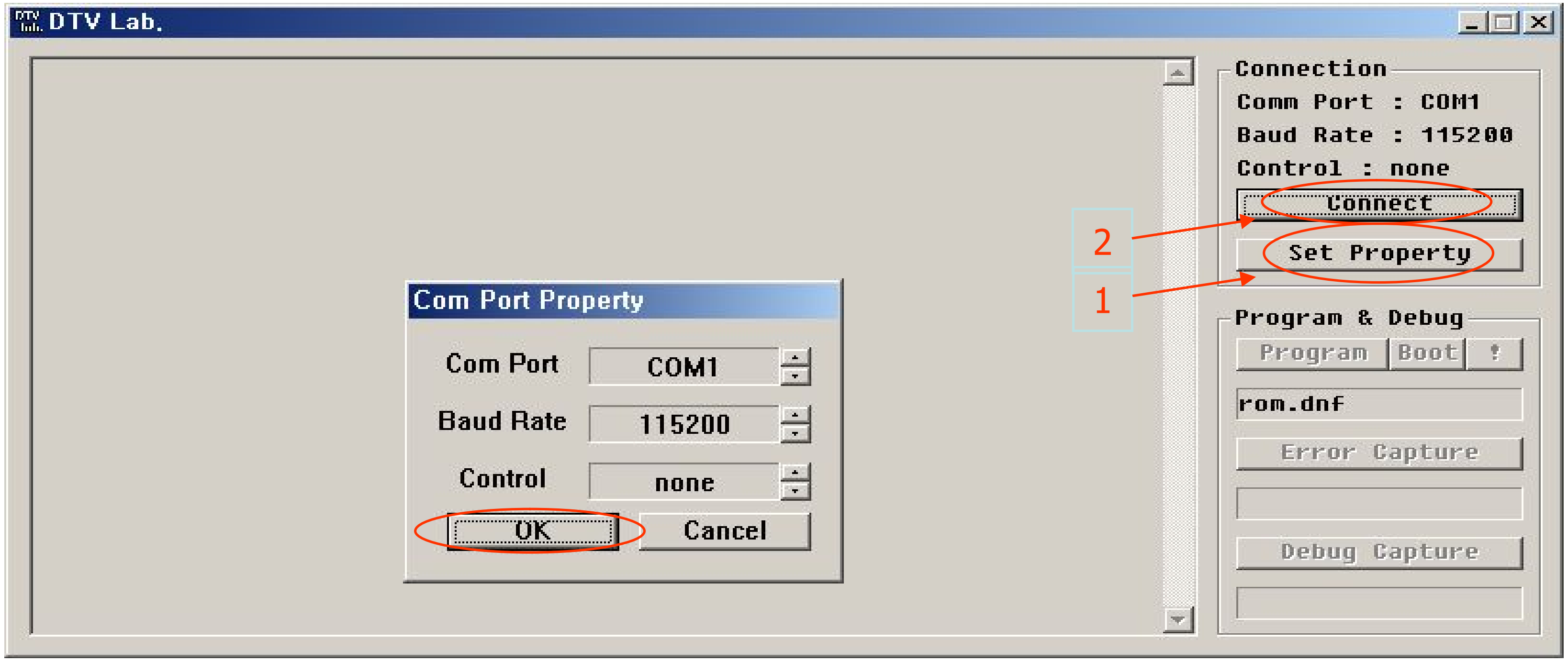


Download ROM File and adjust Y-SUS Board voltage.

-Vy 100, 110 --> 90V Level adjustment



2. Instructions for DTV Lab



1. Press Set Property.

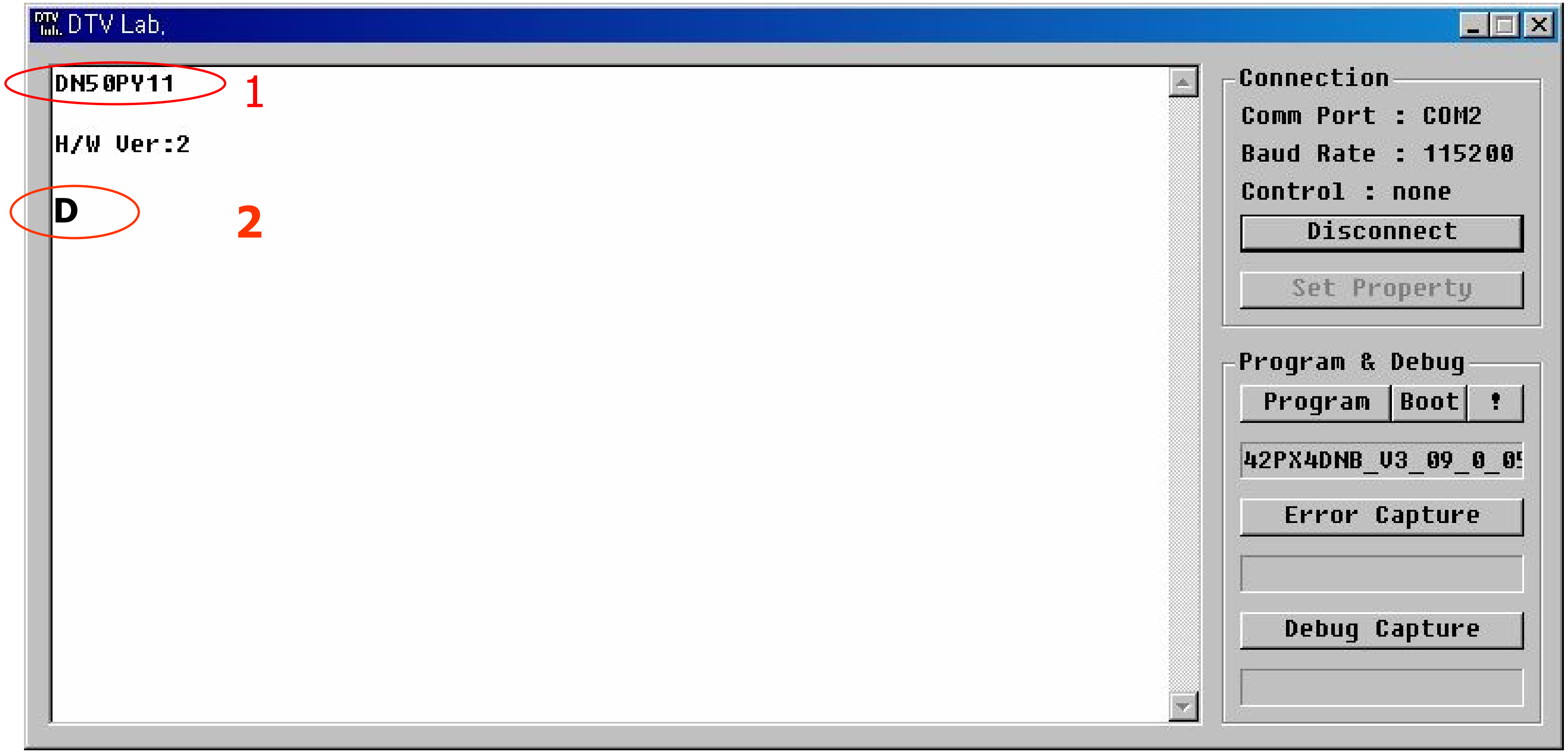
- **-. com port : Select one among com1~com5**
- **-. Baud Rate : Check 115200**
- **-. Press OK after checking.**

2. Communication starts by pressing Connect key



Set PORT when ERROR occurs

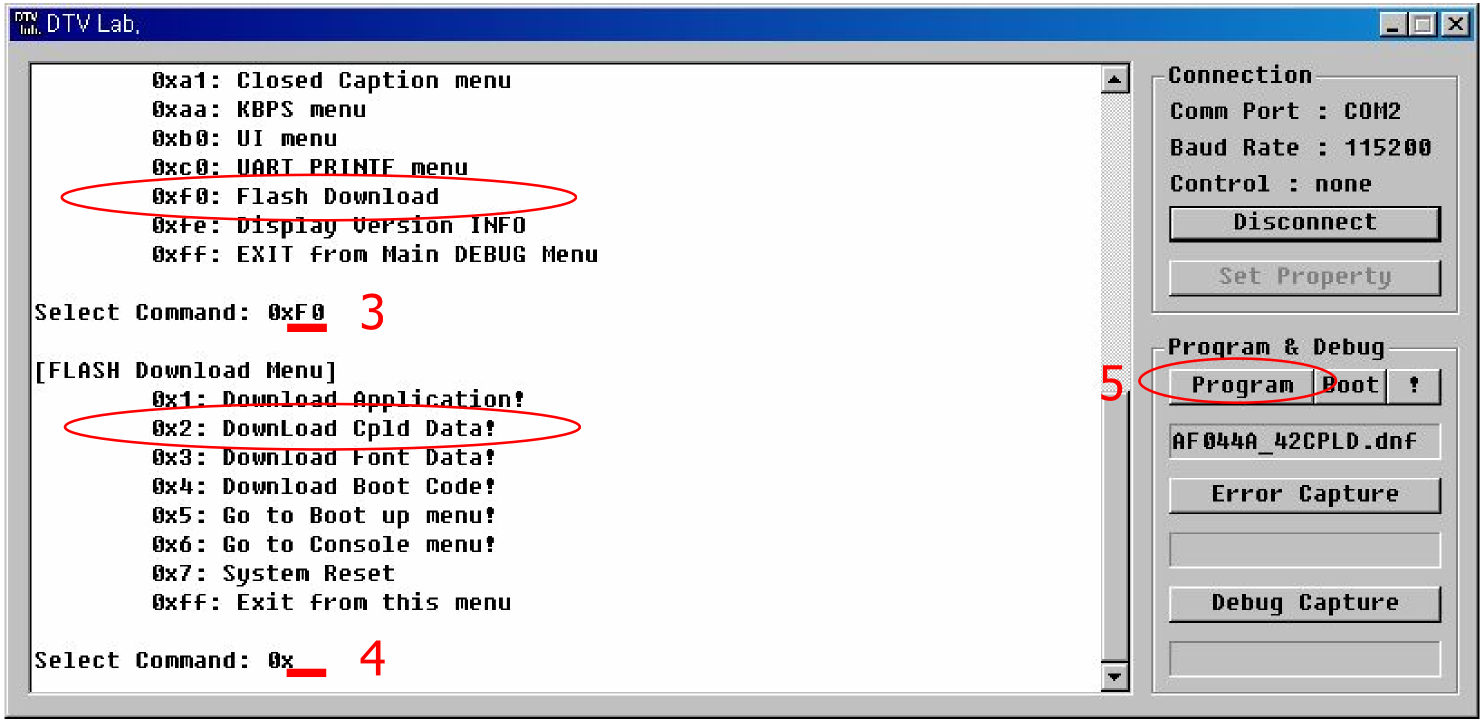
2. Instructions for DTV Lab

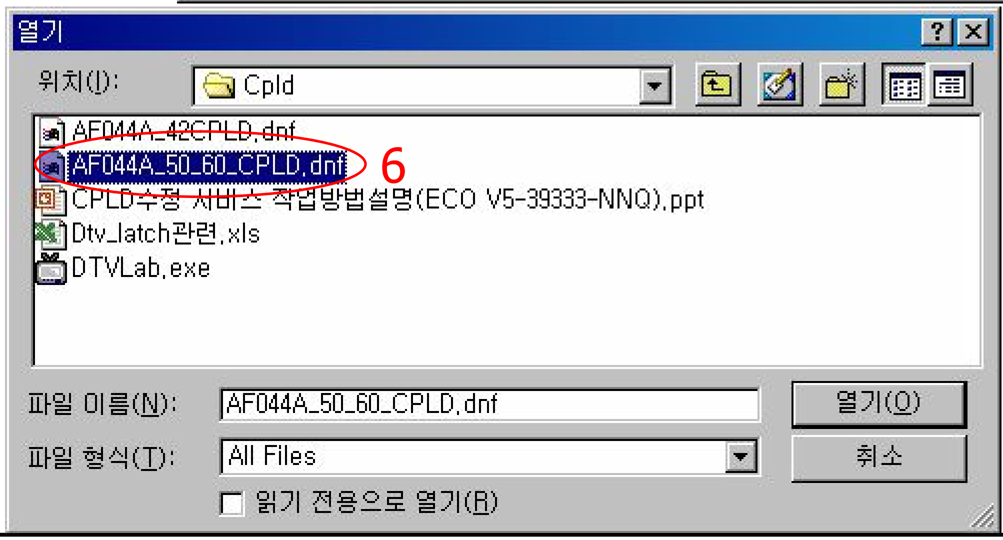


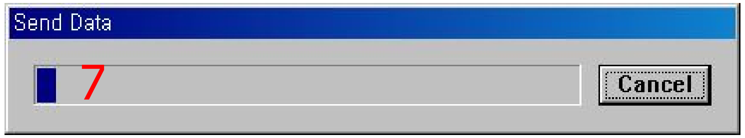
1. **Input relevant model name - without hyphen**

2. **D - (dbug menu)**

2. Instructions for DTV Lab







3. f0 (flash download)

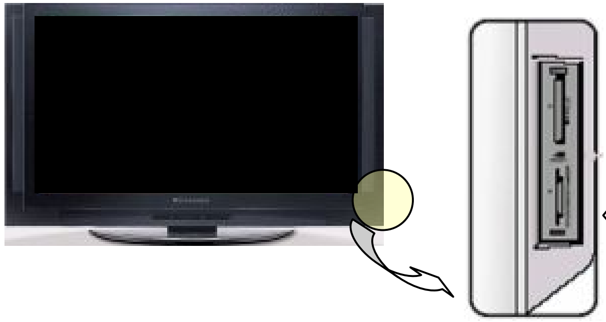
4. 2 (download cpld..)

5. Select Program file

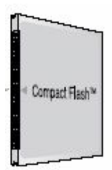
6. Open the program

7. Progressing…

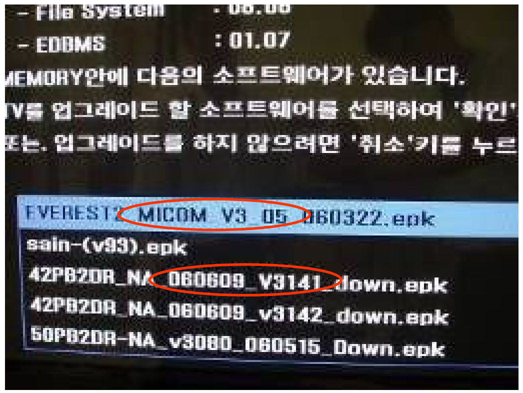
1 Insert Memory card.



CF Type Memory Card



Press Menu-General-Select keys 7 times, and select MICOM and ROM to download.



3. Instructions for Memory Card

2 As Memory card is inserted, the following displays



TV Software Upgrade

[Information on current TV Software version]
- Main software : 3.07.00(04/18/05)

[Information on new TV software version]
- Model : 50PY2DR-NA
- File : 50PY2DR-NA_V3_09_0_050510.epk
- Main software : 03.09.00

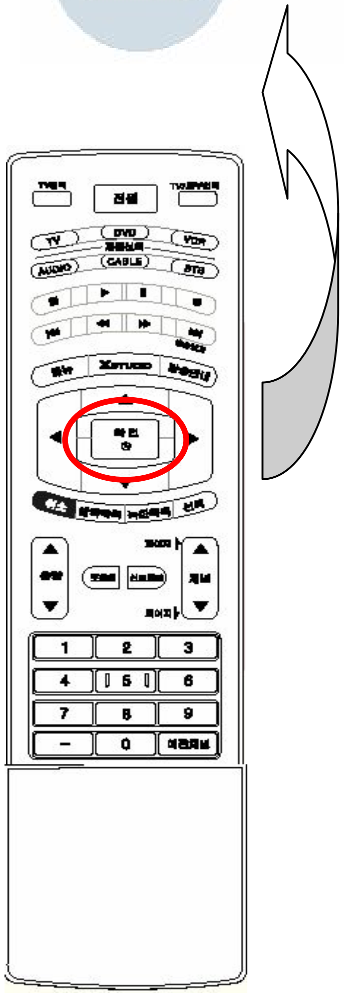
Press down 'Confirm' key to upgrade new software.
(cf. : TV will turn off and then on automatically before upgrade.)
Until software upgrade is completed,
- Do not remove MEMORY from slot.
- Do not turn the power off.

Press down 'Cancel' key to cancel upgrade.

3



Press down 'Confirm'



After 5 seconds, software upgrade starts as shown below.

The picture stays for 5 seconds as it is.

TV Software Upgrade

Now software upgrade is in process.
Until software upgrade is completed,

- Do not remove Memory from slot.
- Do not turn the power off.

Reading software completed.
Main software : upgrading … 18%

4 **After 1 and half minutes, software upgrade is completed as shown below.**

TV Software Upgrade

Now software upgrade is in process.
Until software upgrade is completed,

- Do not remove Memory from slot
- Do not turn the power off.

Reading software completed.
Upgrade completed.

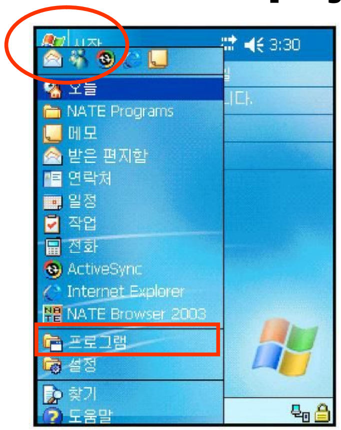
Software upgrade completed successfully.
Press down 'Confirm' key to start TV now.
TV turns off and then on automatically after 18 seconds.

- **Press down 'Confirm' key to start TV again.**
- **If you insert memory card after software upgrade is completed, you won't see upgrade screen.**

4.PDA download

❑ **How to install program**

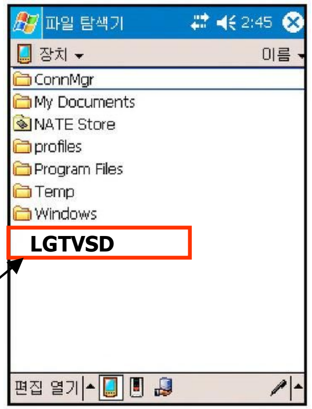
1. Click on 'Start' and select [Program].



2. Select [File Search] in Program file.



3. As [Installation] displays, copy "LGTVSD" directory. (You can copy LGTVSD directory itself)



Copy here

※ **LGTVSD directory has two files.**

- **SerialDown.exe : Download program**
- **model.txt : Model information file**

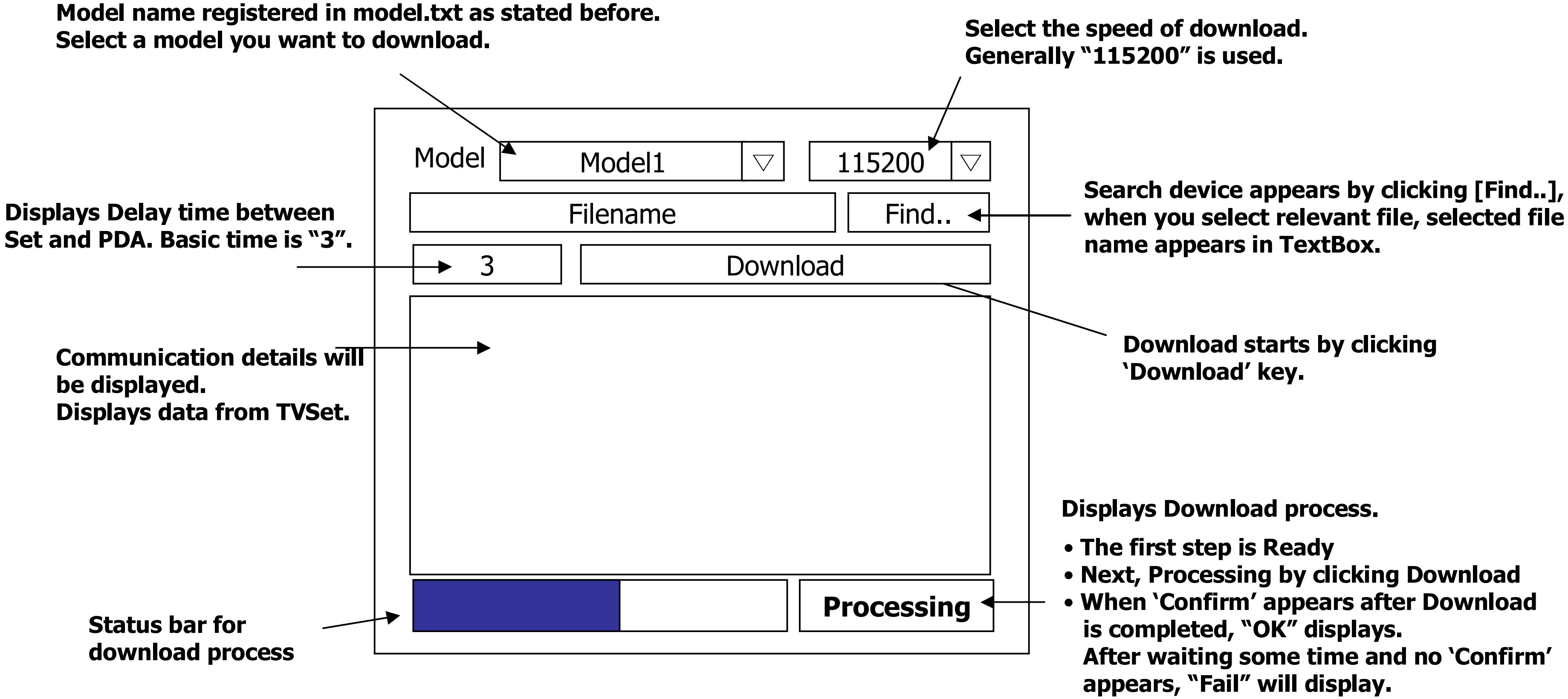
※ **When running SerialDown.exe, models registered in model.txt will display.**
You can edit model.txt file to add additional models.
Generally you can write on Memo pad in PC and copy.

4.PDA download

❑ **How to use program**

1. Select a Model.
2. Select a file to download.
3. Download starts by clicking [Download] key and the process and result of download displays on the bottom screen.

❑ Details of program picture



4.PDA download

※ **PDA currently used has completed the test on LG-SC8000 model.**

- ❑ **PDA Model : LG-SC8000**
- ❑ **OS : Pocket PC 2003**
- ❑ **Communication : RS-232C Serial Communication**
- ❑ **TV Set Model :**

<KOREA>	<N. AMERICA>
32LC2D-ND	32LC2D-UD
37LC2D-ND	37LC2D-UD
42LC2D-ND	42LC2D-UD
42PC1D-ND	42PC3DV-UD
50PC1D-ND	42PC3D-UD
	50PC3D-UD
	50PX2D-UD

Function of Each Part

Part Name	Main Function
Y-Board (Scan Driver)	Connected to Scan electrode(Y-electrode)&FPC for Scan & Sustain drive
Z-Board (Common Sustain Driver)	Connected to Sustain electrode(Z-electrode) and FPC for Sustain drive
X-Board (Address Driver)	Connected to Address electrode(X-electrode) of bottom plate and FPC for Address drive
Control Board	Creates Display Data & Driver Timing for video, audio signal from outside and distributes to X, Y, Z Board.
DC/DC-2 Board	Converts Vs, Val, Vcc voltage into Circuit Logic Voltage(5V) and Val, Vs., Vs, Vsetup voltage to distributes to X, Y, Z Board.
FPC (Flexible Plate Circuit)	Connects PCB and panel pattern by line to line
ACF (Anisotropic Conductive Film)	A Filler between panel and FPC, which is used as thermocompression material to connect the pattern of FPC & panel(Glass). Composed of thermoset polymers and conductive metal powder(Ni, Au).
Heat Sink	Metal plate attached to the back of panel with adhesives, which absorbs and emits the heat from driving
COF (Chip On Film)	Integrated form of IC Chips on PCB and FPC, which makes the structure of PCB simple and small.

Glossary & Definition of Defect

Glossary	Condition	Cause
Non lighting Cell Defect	Cell is always OFF	▶ Particles or structural fault of cell
Flashing Cell Defect	Cell repeats On/Off	▶ Particles or structural fault of cell
Non-extinguishing Cell Defect	Cell is always ON	▶ Particles or structural fault of cell
High Intensity Cell Defect	Cell is considerably brighter than others or different color appears	▶ Particles or structural fault of cell

3-2 Image Fault

Glossary	Condition	Cause
Quantizing Noise	Several luminance layer is seen in gradations of dark to bright. Especially a luminance layer of contour form is seen on human faces.	▶ The difference of brightness in the same gradation between lines with heavy load and lines with light load according to pictures. ▶ The layer is seen by skipping over neighboring gradation for White Balance & γ compensation with digital.

Glossary & Definition of Defect

Glossary	Condition	Cause
Contour Noise	Contour noise appears as several false contours of objects on moving image due to the time difference of gradation.	▶ PDP is a device displaying color by dividing seconds, so viewers' sight follows image of video picture. Contour noise is having a false contour by the shade of the previous picture being added to the shade of current picture
Image Retention	The afterimage of the previous image continues after signal input and removal, which disappears in minutes.	▶ Memory Effect which is specific characteristic of AC PDP.
Image Sticking	The previous afterimage is seen when changing a certain pattern to different patterns after displaying for a long time.	▶ Degradation of phosphor in fixed pattern which is displayed for hours.
Mis-writing	Many unstable cells in gradation pattern are ON/OFF.	▶ Unstable gradation signal when driving.

Glossary & Definition of Defect

Maldischarge	Flashing Type	Cells which supposed to be Off repeat On/Off and are spread irregularly	▶ Incomplete removal of wall charge, space charge in Reset period ▶ Unequal condition of cell discharge by the uneven structure of panel ▶ Shift of Priming Charge by the structural fault of unit cells
	Luminescent Spot Type	Cells repeat On/Off in abnormal bright color and are spread irregularly (mostly in White, Gray Pattern)	
Crosstalk		Cell that supposed to be Off flashes unnecessarily on certain places and tends to spread over time.	▶ Shift of Priming Charge by the structural fault of unit cells ▶ Polluted Cell
Spot		Colors in some part are different with normal part	▶ Pollution of PCB while manufacturing
Over-discharge		Over-discharge in some part, which looks like stained spots especially in single or white pattern.	▶ Pollution or unequal structure in some part on panel

Glossary & Definition of Defect

Glossary	Condition	Cause
Add Open	No lighting of vertical lines which supposed to be ON	▶ Address electrode Open ▶ Fault on X-Board, Control-Board, compressed part of FPC
Add Short	Vertical lines which supposed to be Off are lit up	▶ Fault on X-Board, Control-Board, compressed part of FPC
Sus Open	No lighting of horizontal lines which supposed to be On	▶ Sustain(Z), Scan(Y) electrode Open, Dielectric breakdown ▶ Fault on Z, Y-Board, Control-Board, compressed part of FPC
Sus Short	Horizontal lines which supposed to be Off are lit up	▶ Sustain(Z), Scan(Y) electrode Short ▶ Fault on Z, Y-Board, Control-Board, compressed part of FPC
Dielectric Breakdown	No lighting of vertical lines which supposed to be On	▶ Electrode(Z, Y) breaking by high heat generated at dielectric breakdown by the fault(bubble, particle) inside of upper dielectric layer
White Line	Some vertical lines radiate brighter than normal	▶ Defect of electrical mechanism of Add Driver (X-Board)